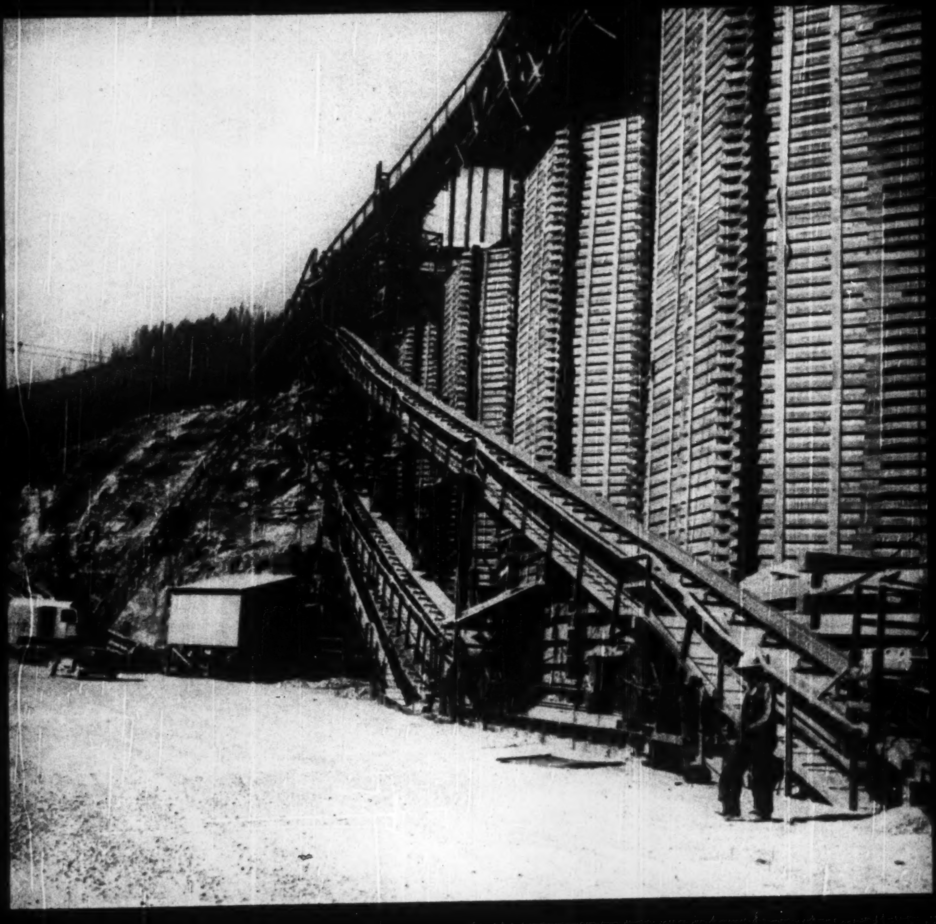
ENGINEERING NEWS-RECORD



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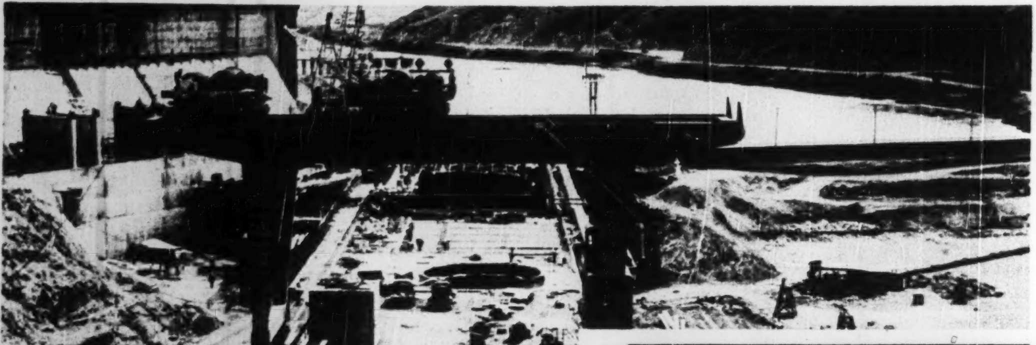
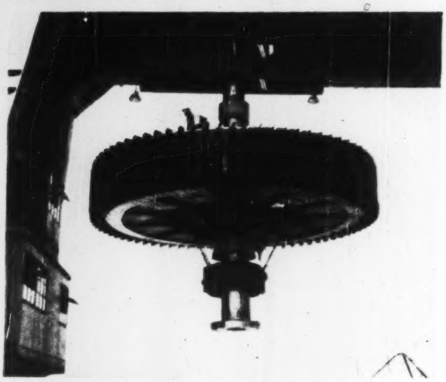


325-ton G-E powered gantry Star Iron and Steel crane at the Davis Dam site on the Colorado River. The crane must operate almost continuously during installation of five turbine generators.

Jogging a 325-ton load 1/10,000 inch at a time

... *Electrically*



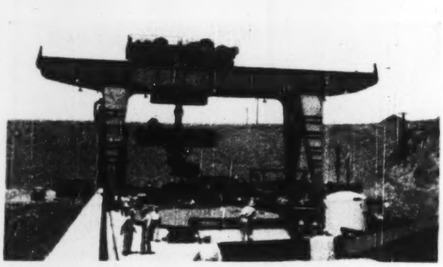
G-E hoist motors and control lift and accurately position turbine-generator rotors weighing over 300 tons.

G-E powered DAVIS DAM CRANE positions heaviest loads accurately, smoothly, safely

It's an unusually versatile crane drive that can either handle an empty hook at twice rated speed, or jog a 325-ton load to within 1/32 inch. Bureau of Reclamation's specifications for Davis Dam outdoor powerhouse crane called for just that type of operation.

The General Electric drive beat the requirements for this job by a wide margin — the full-load jogging accuracy in the lowering direction was .000114 inch.

Electrified construction equipment can work for you too—can give you the fast, safe, efficient service your job calls for. And when you combine G-E motors and control with a G-E power distribution system, you'll get all that electrified equipment can offer with the extra benefits of G-E engineering assistance in application, installation and service. *Apparatus Dept, General Electric Company, Schenectady 5, N. Y.*



From hoist and trolley motors atop the bridge to master switches inside the cab, all G-E equipment on this Star Iron and Steel crane works smoothly to move heavy loads accurately and safely.

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job — at lower cost — by complete electrification. Write him now, and he'll call on you at your convenience.

Electrified Construction

BETTER PRODUCT

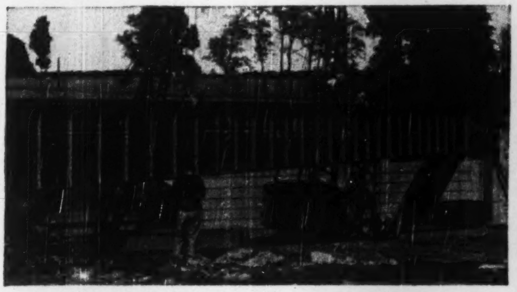
LOWER COST

GENERAL ELECTRIC

664-13

On the Turnpike Extension

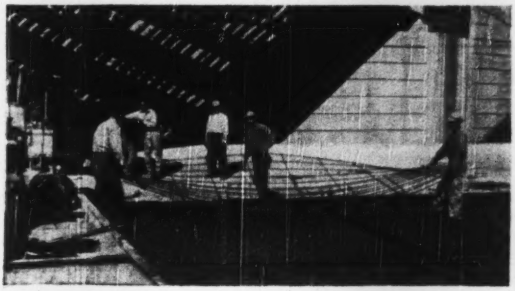
By extending the eastern end of the famous Pennsylvania Turnpike from Middlesex, Pa., to King of Prussia, northwest of Philadelphia, the Pennsylvania Turnpike Commission has brought closer its goal of a limited-access toll road spanning the Keystone State from east to west. The accompanying pictures were taken at various points along the new 100-mile Turnpike extension, and show representative uses of some of the steel products furnished by Bethlehem for this most famous of express highways.



Large Bethlehem-built girder, one of many steel girders used in constructing new Turnpike bridges, being inched into place by heavy crane.

Bethlehem Dowel Unit, designed to minimize load-transfer problems by permitting free movement of dowels in slab, about to be covered with concrete.

Workmen carry Bethlehem Hinged Bar Mat into place after first pour. Mat folds over double, installs fast. Completed lanes shown in background.



Airview showing construction activity on 100-mile eastern extension of the Pennsylvania Turnpike, at a point approximately due south of Lebanon, Pa.

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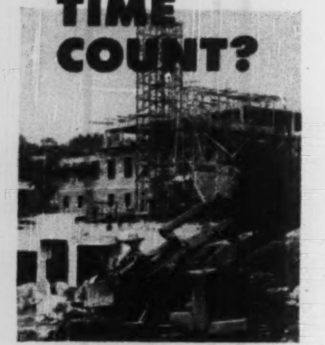

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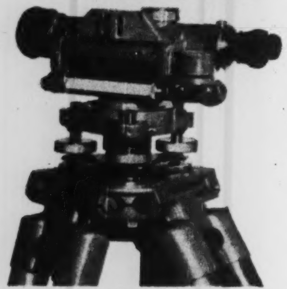

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ENGINEERING NEWS-RECORD

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Volume 145 **DECEMBER 28, 1950** **No. 26**

WALDO G. BOWMAN
Editor

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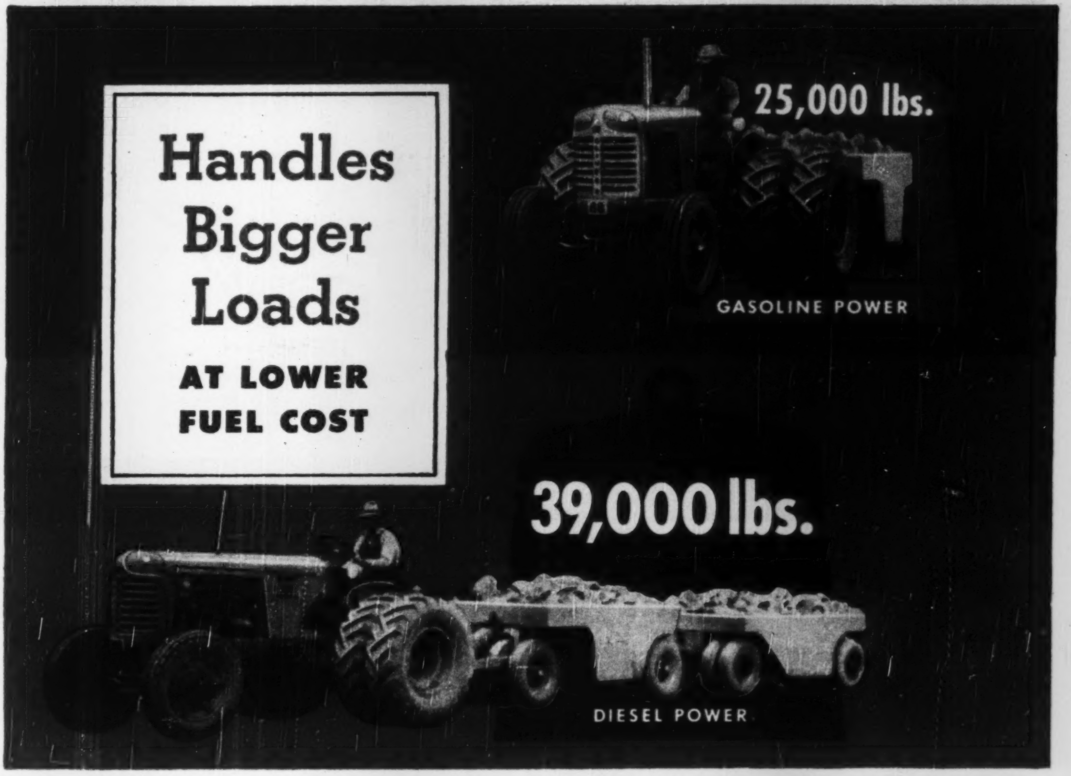
OLIVER DIESEL POWER



What better proof could you ask of the *economy* you get with the new Oliver "88" Diesel Wheel Tractor? On this job an "88" Diesel is handling *two* rubber-tired compaction rollers vs. a gasoline powered tractor of equivalent size pulling *one* roller. The owner reports a fuel cost saving of 50% even though the Diesel model was pulling a load of 39,000 lbs. vs. the Gasoline model pulling a load of 25,000 lbs.

The new Oliver "88" is a natural for industrial wheel tractor operations. It's remarkably easy to start . . . requires no starting preparations. Overall efficiency is high due to superior air and fuel mixture. Efficient burning of fuel and air assures exceptional fuel savings. Prolonged piston head pressure increases lugging ability under heavy loads.

You'll find it will pay dividends in increased load handling ability . . . lower operating costs to investigate the new Oliver "88" Diesel Industrial Wheel Tractor. Your Oliver Industrial Distributor will give you the complete story.

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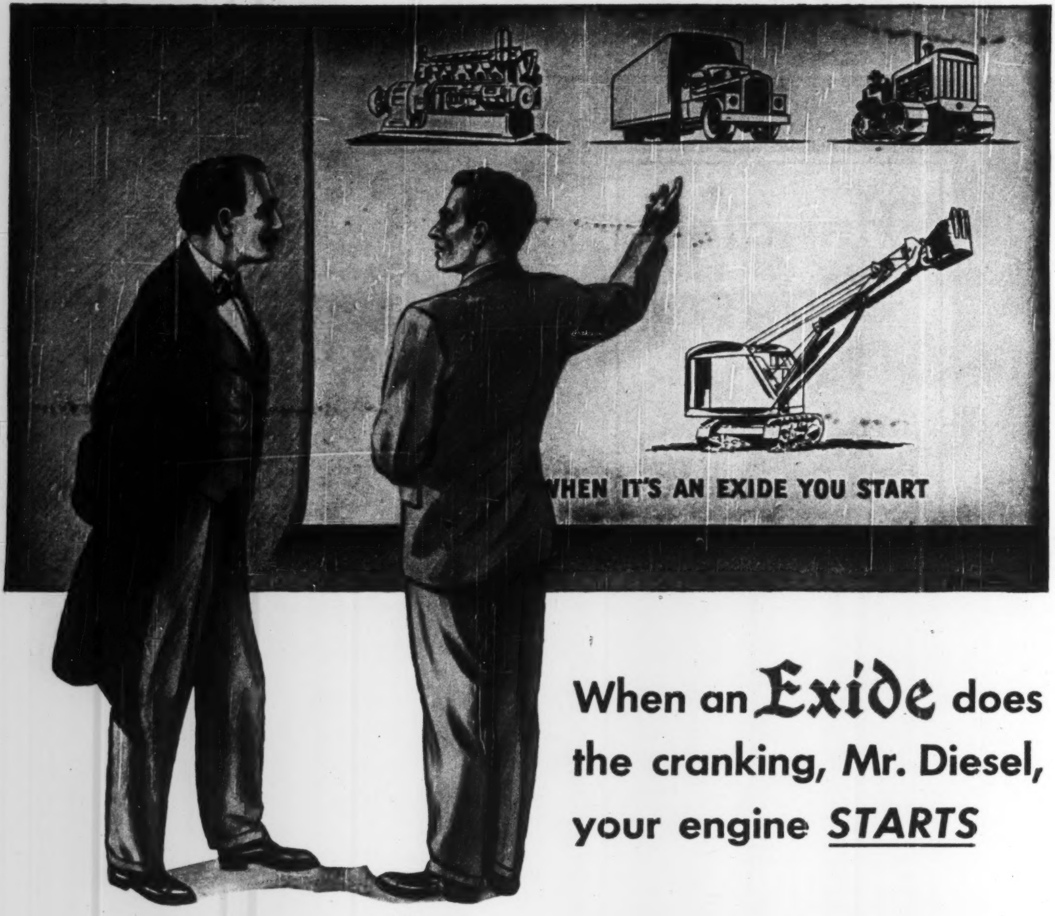
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When an Exide does the cranking, Mr. Diesel, your engine *STARTS*

You can count on sure starting, because an Exide Battery is built specifically for the job . . . built to deliver the mighty surge of cranking power a Diesel engine needs.

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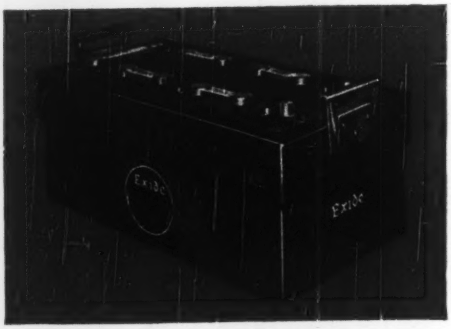
You also get:

- long life—low depreciation, less frequent replacements.
- low costs—operating, maintenance, repair.
- rugged construction, for heavy-duty service in all climates.

For maximum economy and dependability, use Exide Batteries for all your Diesel cranking—buses, trucks, trailer-tractors, off-the-highway equipment, ships, power plants, Diesel-electric locomotives.

TO HELP YOU GET TOP CRANKING performance, Exide's Engineering Staff, the largest in the industry, will be glad to help you solve any of your Diesel-cranking problems.



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1888 . . . DEPENDABLE BATTERIES FOR 62 YEARS . . . 1950

THE CONSTRUCTION WEEK

BUILDERS-LENDERS IGNORED—Some savings and loan people think HHFA Administrator Foley should have invited industry-committee advice in drafting the defense housing legislation to be submitted to the 82nd Congress next month. In their view the administration bill would fit the facts better if Foley had called industry meetings as was done before housing credit regulations were issued.

DELAYED DISPERSAL—In his last month before retiring from Congress, Chairman Will Whittington of the House Public Works committee put the seeds of federal dispersal planning back on the shelf to let them sprout until January. After a subcommittee had reported that a "sound plan is not available; rather there exists an uncoordinated group of ideas" for relocating government agencies in Maryland and Virginia, Whittington settled the matter for the short session in these words: "If it takes two years to build those new buildings, then it won't hurt to take another 30 days to mature the plans so we'll know what it's all about."

SELF-LIQUIDATING SHELTERS—The Senate Armed Services Committee amended the Civil Defense Bill to let the RFC lend up to $250 million for underground garages or other self-liquidating structures that could be used as communal shelters against A-bombs. There was a chance last week that Congress might approve the authorization, despite criticism that such properties would likely be in the wrong places for emergency use.

TURNPIKE SPEED—The Pennsylvania Turnpike, famed as a 70-mile-an-hour road, may have its wings clipped. A bill that would reduce the maximum speed to 60 mph is being readied for the next Pennsylvania legislature. Proposed as a safety measure (excessive speed causes most Turnpike accidents), the bill is expected to have the indorsement of the Turnpike Commission, state police and highway safety authorities.

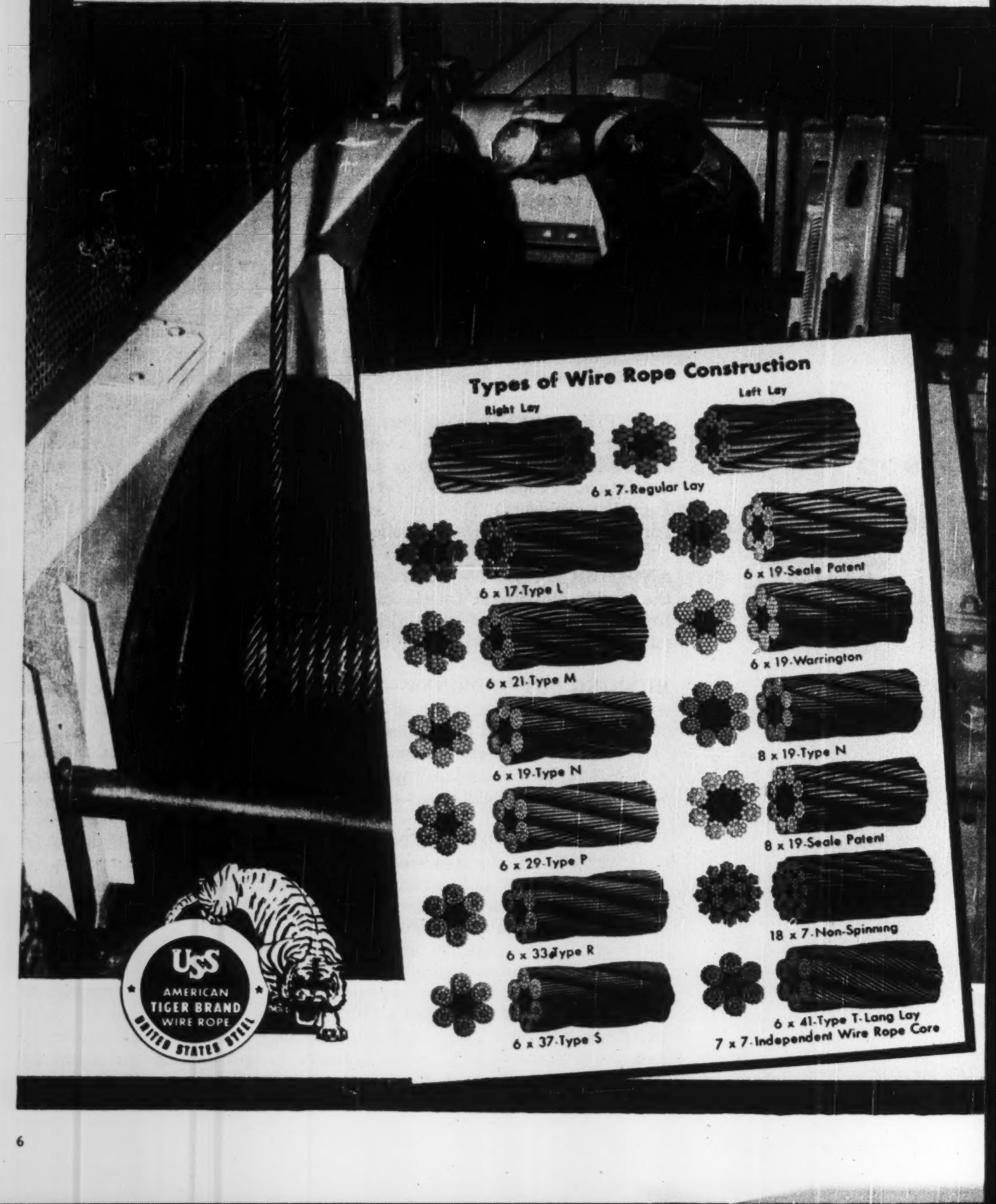
ANOTHER ALCAN?—Construction of a heavy-duty truck highway from the Pacific Northwest to Alaska was strongly supported at a recent San Francisco meeting of the Western Highway Institute executive committee. The institute is sponsored by West Coast motor-carrier operators.

RUNNING OUT OF MONEY—The future of the Buffalo Sewer Authority rests squarely in the hands of the New York legislature, which convenes next month. Created by the legislature in 1935, the authority has a debt limit set at $15,000,000. The final $2,135,000 has been earmarked for expansion of the Bird Island sewage-treatment plant. Further major-project financing would depend on an amendment to the enabling act.

CAROLINA RAILROAD—There is talk of a combined rail-highway from the Asheville, N. C., area westward to Tennessee. North Carolina has a $450,000 fund set aside for a new road in that region. Recently the backers of a proposed railroad approached highway commission men with the suggestion that they share the right-of-way, grading and structure costs of a joint venture. Highway officials emphasize that the job is strictly in the "pipe dream" stage.

HELLS CANYON CONSTRUCTION—Reclamation has tried to convince the Budget Bureau that the President should request initial construction money for Hells Canyon in his January budget message for fiscal 1952. It would take at least five years to complete the 742-ft. dam and 900,000-kw. power plant in the spectacular Snake River canyon.

The Tiger Brand Specialist says-


Types of Wire Rope Construction
Right Lay
Left Lay
6 x 7-Regular Lay
6 x 17-Type L
6 x 19-Seale Patent
6 x 21-Type M
6 x 19-Warrington
6 x 19-Type N
8 x 19-Type N
6 x 29-Type P
8 x 19-Seale Patent
6 x 33-Type R
18 x 7-Non-Spinning
6 x 37-Type S
6 x 41-Type T-Lang Lay
7 x 7-Independent Wire Rope Core
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AMERICAN
TIGER BRAND
WIRE ROPE
UNITED STATES STEEL

"Here's what you should know about wire rope —and how to select, use and care for it."

THE three most important qualities that wire rope must possess are (1) strength, (2) fatigue resistance, and (3) abrasion resistance. Whether the rope is used on hoists, cranes, excavators, conveyors, loaders or unloaders, these properties are required in varying degrees depending on serivce requirements.

STRENGTH—This is determined by size, grade, and construction. Wire for wire rope can be made in any desired tensile strength ranging from iron grade at approximately 100,000 lbs. per sq. in. to improved plow steel grade at approximately 250,000 lbs. per sq. in. The knack of making Tiger Brand Ropes with uniform strength throughout shows the skill of the wire rope manufacturer.

FATIGUE RESISTANCE—The ability to make wire that will stand thousands of bends over drums and sheaves without breaking is no small accomplishment. The wire must be made with just the right amount of toughness and ductility. Tiger Brand Wire Rope is made from wire especially fabricated for wire rope use. Ropes composed of a large number of small wires will have higher fatigue resistance than those made with a smaller number of large wires.

ABRASION RESISTANCE—This is determined by the size and chemistry of the wires, especially the outer wires as they are exposed to the most wear. Obviously, the larger the wire size the greater the resistance to abrasion. Furthermore, the high strength steels are better able to withstand wear because of a greater carbon content. This means that improved plow steel ropes would have the highest abrasion resistance.

Getting the right balance

Individually, the properties of strength, fatigue resistance, and abrasion resistance are not difficult to obtain . . . but in wire rope making, it is impossible to accent one property without detriment to the other two. That's why the skill and experience of the men who make Tiger Brand Wire Rope are so important. Satisfactory performance demands that running ropes possess all three properties and therefore it is necessary to obtain an effective balance which meets the requirements of your particular job.

How to get longer wire rope life

Don't overload the rope.

Don't subject the rope to sudden impact loads.

Don't use undersize sheaves and drums—this is the commonest cause of fatigue breaks.

If vibration is present, make regular cuts from the end of the rope so as to change the dampened section.

Keep groove diameters proper size so as to avoid pinching of rope.

Avoid flange wear as a result of bad sheave alignment.

If grooves become fluted, it is usually a sign that the sheaves should be replaced with a harder material.

Lubricate regularly. Wire rope is a machine and requires adequate lubrication. It must also be protected from corrosion to retain strength.

Avoid kinking, improperly attached fittings, and uneven drum winding.

Make use of the Tiger Brand Wire Rope Specialist

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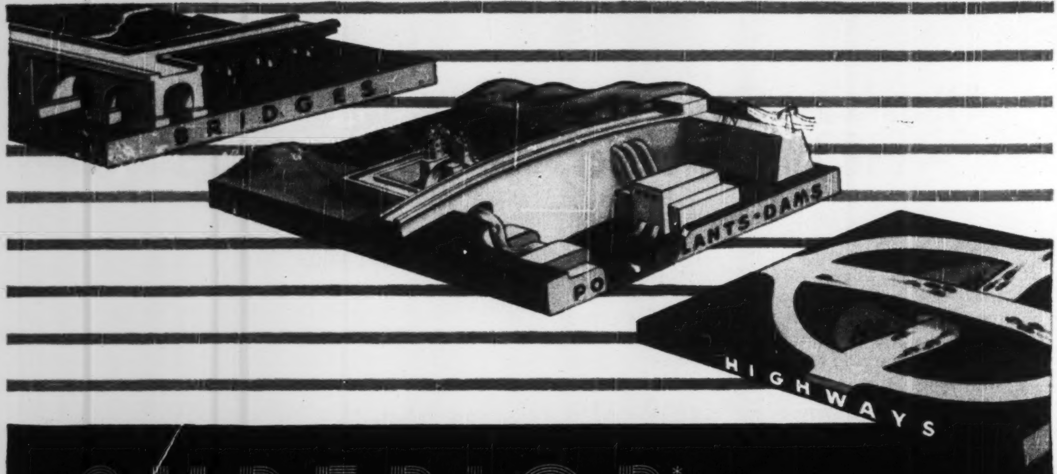
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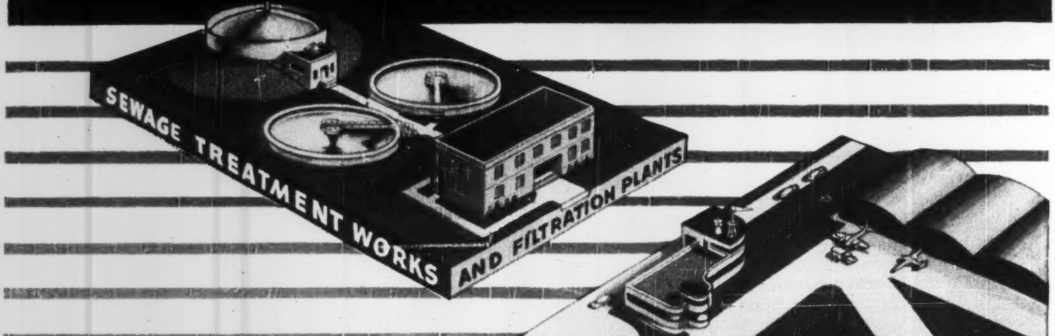

SEWAGE TREATMENT WORKS AND FILTRATION PLANTS
AIRPORTS

Christmas Points The Way

Friendship, charity, unselfishness, a dedication to goodwill—those great Christian principles that Christmas brings so prominently into men's hearts and minds —are given added meaning this year by the declaration of a national emergency. It is from a lack of them that the grimness and the tragedy of the times springs. And it is in a reaffirmation of them as prime objectives of both person-to-person and nation-to-nation dealings that the greatest hope for peace rests.

Let this Christmas mark both a reaffirmation of these principles and a rededication to the spirituality that promises their attainment. No better Christmas wish is possible. It is the wish of the editors of Engineering News-Record for every reader.

Self-Supporting Conventions

No one of the hundreds of men and women who attended the Miami meeting of the American Association of State Highway Officials could have left that city without having been deeply impressed by the hospitality that was so freely extended to them by individuals and organizations during their stay in Florida. More than a thousand delegates, guests and wives were treated to a sumptuous buffet supper in the garden of the Roney Plaza Hotel and to a full evening of entertainment—all at no cost to them. Similarly, the fifteen bus loads that went on the all-day trip to Key West were given lunch at Key West and a buffet supper at Pigeon Key—again at no cost to the participants. And not to be forgotten was the limitless supply of orange juice at convention headquarters that was patronized so freely by California's native sons.

It was all very pleasant and deeply appreciated. But there were those who found the edge taken off their pleasure by some inner questioning as to who was footing the bills and as to why the delegates should be accepting so much as a matter of course. The programs told them that their hosts were the Florida State Road Department, the Monroe County Board of Commissioners, the Overseas Road and Toll Bridge Authority and a large group of road contractors and materials dealers. As to whether the delegates and guests should accept so much as a matter of course—as was done also in other years in other states, and as is done at the conventions of many other organizations—is a question that could not be so easily answered.

Hospitality is a heart-warming habit. We all like it. But we also know that it can be costly—to the point of embarrassment at times—for public bodies and companies as well as individuals.

Is it not past time for the directors of our many technical or professional organizations to lay down a firm rule that all meetings must be on a strictly self-supporting basis. If a society elects to pay part of the costs, such as the charges for meeting rooms, out of its own treasury, that would be for the directors to decide. But no contributions should be solicited or accepted from sources outside the organization. In particular, there should be no solicitation of contributions from organizations or individuals with whom the members of the association or society normally have business relations.

Under such a plan, meetings would cost more to the members who attend, which would probably result in their expecting to get more out of each meeting. That consideration should result in better meetings —possibly fewer and better planned meetings. Also, communities that now hesitate to be host to meetings because of the hidden costs or embarrassment over not being able to "keep up with the Joneses" would be able to act as hosts under such a plan.

Business as Usual

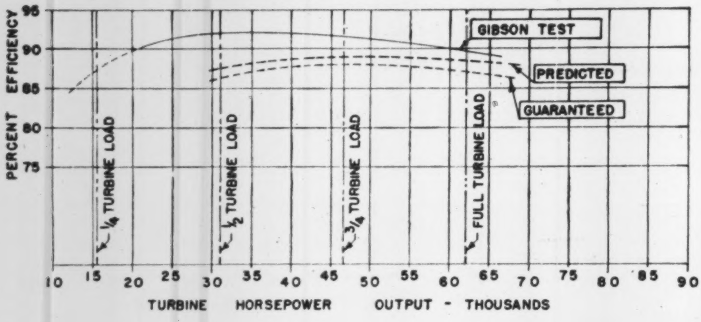
Building remodeling, when it involves structural changes is at the same time one of the most difficult and least spectacular of engineering and construction tasks. And the difficulty is compounded on commercial structures where the requirement of business as usual during alterations is frequently imposed.

These facts receive special emphasis from a job being done in Boston where a block-square department store is being torn down and replaced (see p. 34). By dividing the store into five sections, to be worked on one at a time, it was possible for normal selling operations to continue unaffected in the four other sections.

Sometimes, however, business as usual, can only be carried on by working piecemeal in the existing building, as when the Abraham & Straus department store in Brooklyn, N. Y., was partially rebuilt several years ago. On that job the foundation contractor (Spencer, White & Prentis), in order to permit full use of the building during the Christmas rush of one year, had its men work during store hours inside a movable enclosure just big enough to include bases for two new interior columns. All excavated material was removed at night. Part of the foundations for a new structure were installed in this way. When the holiday rush was over, the section being rebuilt was demolished, foundations were completed and the new structure was finished before the next Christmas rush.

The point is that construction forces, which sometimes seem to be doing their work the hard way when altering in-service structure, actually may be saving the owner dollars by unusual methods adapted to the situation.

Another WORLD RECORD

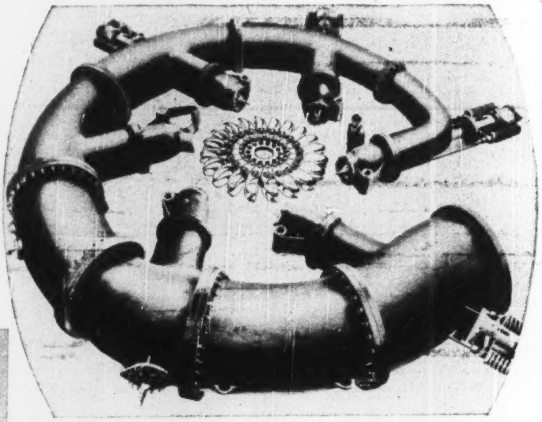


Guaranteed, predicted and official Gibson Test performance of Bridge River Turbine.

←

Schematic arrangement of the 6-nozzle vertical impulse turbine developed by Pelton for the Bridge River Hydro project.

↓



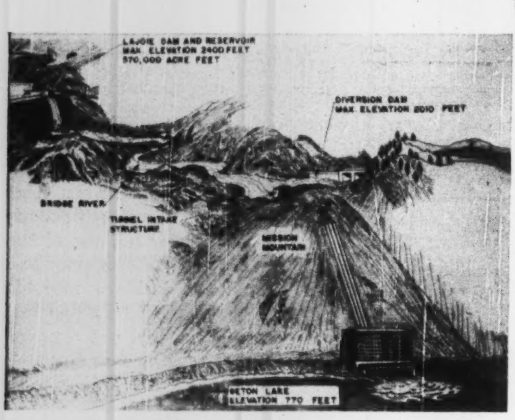
Rivaling the spectacular performance of the jet engine, these "jet-power" impulse turbines, designed and built by Pelton Water Wheel Company, a Baldwin subsidiary, have achieved another world record in hydro-power development.

Specified by the British Columbia Electric Railway Co., Ltd., to produce a guaranteed efficiency of 88% and a predicted efficiency of 89%, with a present gross head of 1226′ and maximum future gross head of 1360′, the first 62,000 hp unit, driving a 50,000 kva generator at 300 rpm, showed a Gibson Test efficiency of 92% maximum, and maintained a plus-90% efficiency over practically 80% of its operating range.

Normal practice would have called for a reaction turbine in this installation.

Since the water was highly silted, an impulse turbine was preferred . . . and to conserve power house space, a vertical, multi-nozzle unit was the most desirable type.

Extensive laboratory scale-model tests and flow studies, conducted by a large staff of engineers over a long period, produced a design that not only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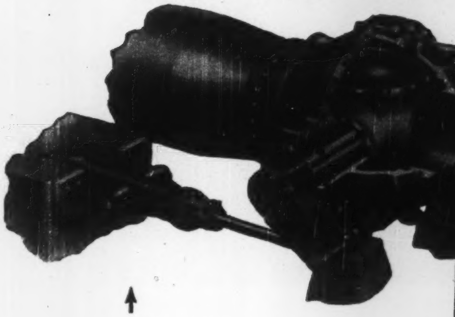
570,000 ACRE FEET
DIVERSION DAM
MAX. ELEVATION 2010 FEET
BRIDGE RIVER
TUNNEL INTAKE
STRUCTURE
MISSION
MOUNTAIN
SETON LAKE
ELEVATION 770 FEET

Diagrammatic view of the mammoth Bridge River development. Power potential is estimated at 600,000 hp. Three Pelton-built units are now in successful operation.

BALDWIN

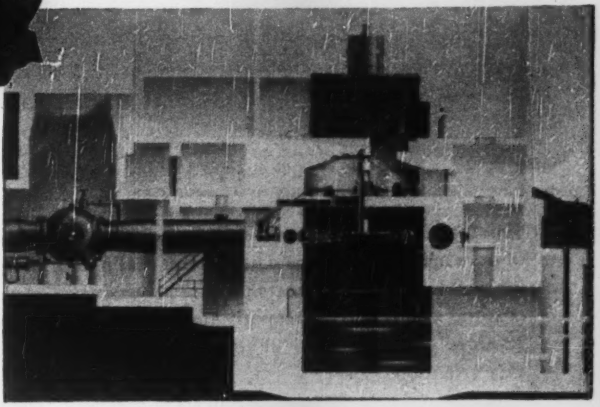
by BALDWIN

with PELTON WATER WHEEL COMPANY VERTICAL SHAFT MULTI-NOZZLE IMPULSE HYDRAULIC TURBINES



The main spherical-type inlet valve, developed by extension of model-valve data, provides uninterrupted flow passage when open, and exceptional tight seating.

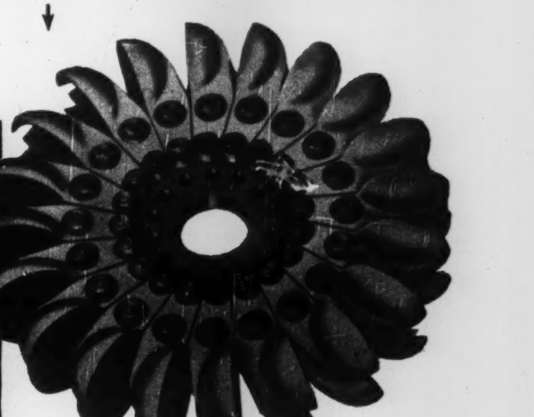
Pictorial illustration of arrangement of turbine and inlet valve in power house. Arrangement conserves power house space, and an elaborate draft-tube is not required.

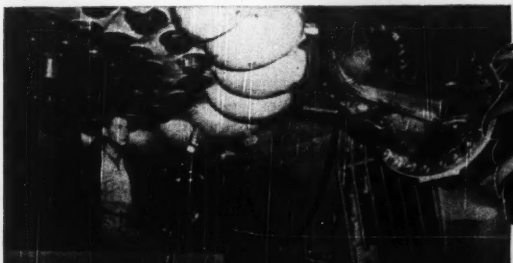


eliminated past shortcomings of the vertical impulse turbine, but produced efficiencies comparable, to, or greater than, those obtained from the best reaction turbines.

This installation demonstrates again that the greatest value of Baldwin experience is not in duplicating the past—but in pioneering for the future. This experience is at your service, in working out the most desirable solution to your hydro-development problems. Ask for our Bulletin on the Bridge River Project.

Runner is formed of 20 cast steel buckets, bolted to a solid steel disc, and is believed to be the largest capacity runner of its type.





This view in the pit shows the ease of access. Runner, deflectors, needles, points, and nozzles are all easily reached for inspection and maintenance.

HYDRAULIC TURBINES

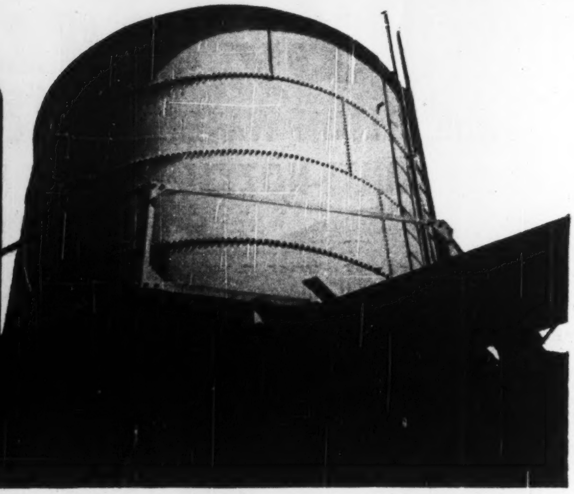
BALDWIN-LIMA-HAMILTON CORPORATION
Philadelphia 42, Pa.

THE PELTON WATER WHEEL COMPANY
2929 Nineteenth Street, San Francisco 10, Calif.

Offices: Boston, Chicago, Cleveland, Houston, New York, Philadelphia, Pittsburgh, San Francisco, St. Louis, Washington.

positive corrosion protection at lower yearly cost

WITH
PURE METALLIZED
ZINC AND ALUMINUM



15,000 gallon sprinkler tank. Interior metallized with .006" pure zinc, in 1934—no trace of corrosion in 1950.

The long-lasting, corrosion resistant qualities of pure metallized zinc and aluminum coatings are well known. Life expectancies for protective coatings of this nature, properly applied, usually range upwards of 20-30 years without further attention.

A new series of 18 basic engineering specifications, called the Metco Systems, recently announced by Metallizing Engineering Co., provide the answer to standardization of surface preparation, coating thickness required for various service conditions, and after-coatings of different materials to meet specific requirements.

The result of over 19 years' continuous testing of pure metallized zinc and aluminum coatings in corrosion protection service, Metco Systems cover the protection of structures and equipment under a wide range of corrosion conditions.

These include actual immersion in salt or fresh water of various pH values; exposure to water ballast, condensate and some mild acid solutions; salt, humid, rural and industrial atmospheres ranging from light to heavy. The Systems also contain provisions for appearance requirements with specific organic coatings, available in a range of colors, all thoroughly tested for compatibility with the metallized zinc or aluminum.

The following organizations are set up to provide positive corrosion protection at lower annual cost in accordance with Metco* System specifications. For further information, or a copy of descriptive bulletin, contact the one nearest you.

**Reg. U. S. Pat. Off.—Property of Metallizing Engineering Co., Inc.*

Metco System contractors	**Akron Sand Blast Co.** 50 E. Springfield Rd. Barberton, Ohio Tel. Plaza 3412	**Dix Engineering Co., Inc.** 1417 Dix Road Lincoln Park 25 (Detroit), Mich. Tel. Dunkirk 1-8822	**Metal-Cladding, Inc.** Lakeview & Porter Avenues Buffalo 1, N. Y. Tel. Elmwood 9536
Metalweld, Inc. Fox & Hunting Park Ave. Philadelphia 29, Pa. Tel. Radcliff 5-3471	**Nooter Corporation** 1420 South Second Street St. Louis, Missouri Tel. Main 6000	**Thermaflo Metal Products, Inc.** 50 Dell Avenue New London, Conn. Tel. 2-4300	**Arthur Tickle Engineering Works, Inc.** 21 Delevan Street Brooklyn, N. Y. Tel. Main 5-4200

ENGINEERING NEWS-RECORD

DECEMBER 28, 1950 VOL. 145, NO. 26

Civil engineering volume tops $12.3 billion for year

Estimate $35 billion as dollar volume for whole industry—Cost indexes rise with huge investment—Housing, highways, industrial and commercial buildings lead boom

The biggest construction year in history—from a dollar standpoint—went into the record books this week.

This was the record:

A total of $12,350,000,000 in contracts let for civil engineering construction (including mass housing)—51.5% over ENGINEERING NEWS-RECORD's recorded total of $8,157,000,000 for 1949;

An estimated total of $35,000,000,000 worth of business for the whole construction industry (including maintenance and repair, government work, private residential work). In 1949, the estimated total was $25,000,000,000.

Part of the record, too, were unprecedented rises in costs: ENR's building cost index hit a peak of 396 (compared to 357 in the previous high year of 1948), and the construction cost index reached as high as 534, (compared to the 480 index in 1948).

Another sobering note was this: Figured in terms of 1939 dollars, the $12.4 billion bought about $6 billion worth of physical construction. That was 5% below the war year of 1942, when a recorded total of $8 billion bought (in 1939 dollars) $6.3 billion worth of construction.

- **The records fall**—The records fell fast as year-end totals were compiled.

At the end of 51 weeks, highway contracts totalled $1,247 million compared with $885 million in 1949; Public buildings reached $2,387 million compared with $1,358 million for 1949; private housing was $3,104 million compared with $1,817 million a year ago; industrial buildings had reached $1,660 million compared with $744 million in 1949; commercial buildings reached $962 million as compared with $565 million a year ago.

Only two categories reported by ENR showed drops in volume. These were earthworks and waterways, which fell to $415 million from $519 million in 1949; and public housing, which dropped to $347 million from $356 million in 1949.

- **Unusual**—It was a year that confounded the experts, and its only pattern was a wildly fluctuating one—but one that was generally upward. One record week followed another, to be capped by the 50th week of the year, when all records again fell by the wayside to make room for $692 million.

Keys were three separate booms—housing, highways and industrial and commercial building.

Under the stimulus of easy credit and government insurance, the housing boom burgeoned far faster than intended—hitting a pace of more than 100,000 units started each month, on the average. It sucked up materials and manpower so fast (it was the main factor in the wild advances of the lumber market, for instance) that it had to be nipped in midsummer by credit controls and other restrictions. Which are seldom imposed unless called for by unforeseen conditions, such as those existing in this case.

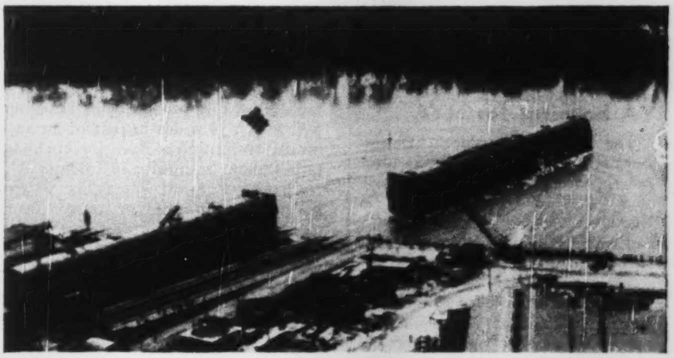
(Continued on page 17)

Engineer manpower policy urged by EJC commission

Charging that the so-called Conant Plan or any similar programs for universal military service would dissipate America's scientific and engineering manpower, the Engineering Manpower Commission of the Engineers Joint Council last week proposed the establishment of a National Engineering Personnel Board to make selections for military, civil defense or industrial allocation from a reserve of men up to the age of 70 with training in one of the critical fields of engineering.

The commission asked that the reserve be created through the registration by selective service of every man up to the age of 70 who has a bachelor's degree in one of the critical fields of engineering or who is enrolled in a program of training leading to a bachelor's or higher degree in one of these fields, or who is employed in one of these fields.

The proposals were submitted by the E.M.C. to Robert L. Clark, director of the Manpower Office of the National Security Resources Board. The E.M.C.'s plan was in answer to a request made by Mr. Clark to the Engineers Joint Council last September that it prepare a "program for the most effective utilization of engineers . . ."



LAUNCHING A TUNNEL—U. S. Steel's Consolidated Eastern Steel Corp., Orange, Texas, recently floated the first of nine fabricated steel sections of a new vehicular tunnel for the Texas Highway Department. A watertight bulkhead at each end sealed the 35-ft diameter tube, shown here in the water. (A second one is on the launching ways.) It was towed to the Houston Ship Channel, where the tunnel section will be sunk 50 ft into the channel bed, after being lined with concrete and roadways are laid. Tunnel will be part of highway link between Baytown and LaPorte.

Rejection of all bids allowed city board

Court rules that where collusion or fraud is not shown city board of examiners has absolute power to refuse all bids

Sustained: a demurrer to a complaint which sought to stop the city of Baltimore from awarding contract for lining Liberty Road water tunnel.

In the opinion filed by Judge Herman M. Moser in Circuit Court a new section of the Baltimore City Charter was read to mean that lacking a showing of fraud or collusion, the Board of Estimates has "absolute power" to reject all bids on city projects.

Complaints had been filed by Francis J. Hamill, Frank A. and Max F. Carozza, trading as Tunnel Construction Co. The parties had submitted an original low bid of $3,151,150 for the concrete-lining work. In original bidding, Samuel R. Rosoff, Ltd., submitted a bid of $3,263,004, second low.

Baltimore rejected all bids when it learned that the Tunnel Construction Co. planned to take in a fourth partner identified as Buckley & Co., Inc., of Philadelphia.

A new round of bids was called for as a result of this development, and the city was able to realize a saving of $285,000.

On the second bid opening, the Rosoff Co. was low with a bid of $2,866,000. The bid was accepted.

Tunnel Construction Co. charged it was ready to carry out the terms of its bid, and contended it had shown proof of financial responsibility.

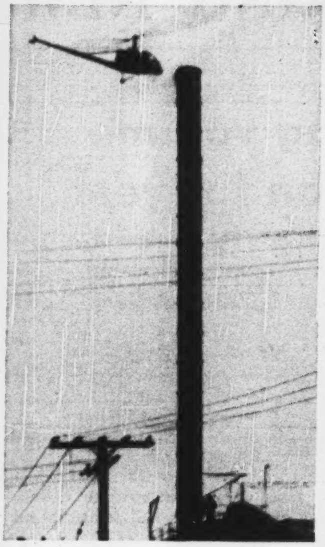
Judge Moser ruled that the complainants had not complied with the bidding provisions since they did not disclose all partners who had an interest in the bid.

VA hospital for NYC

The Corps of Engineers, Department of the Army, has drawn up plans and specifications for the construction of a 1,250-bed veterans' hospital in New York City, to be located on the East Side between 23d St. and 25th St.

The main hospital building will be 19 stories high. Included in the main building will be an auditorium and recreation hall with a seating capacity of 560 and a chapel with seats for 120.

Contracts let previously were to the Global Wrecking Co., New York, for removal of 33 buildings and to the I. B. Miller Co., Long Island City, N. Y., for excavation and driving of piles.



STEEPLEJACK HELICOPTER – Recently, at the Monsanto Chemical Co., Everett, Mass., a 150-ft smokestack had to be painted. A helicopter was used to fly to the top of the stack, where it hovered while the steeplejack leaned out the door and dropped the staging hook to the stack. Block and falls were rigged and played out into position. Total time expended was one-half hour.

Floating bridge proposed for Puget Sound crossing

Homer Hadley, Seattle consulting engineer, has proposed a floating bridge to cross Puget Sound from Alki Point to the south end of Bainbridge Island, with another bridge across the channel to the Kitsap Peninsula.

Outlining his plan at a meeting of the Structural Engineers Association of Washington, Hadley detailed a combination of floating bridge and pier-supported tunnels. Bridge-supporting pontoons would be set transverse to the roadway at 300-ft centers; the deck structure would span between them with about 15 ft of vertical clearance to eliminate the breaking of waves in rough weather against a solid wall of concrete pontoons.

Tunnels would be built under ship channnels at either approach to the bridge, in water as deep as 349 ft. They would be 50 ft below the surface, allowing even the largest ships to pass. Connection of inclined transition tunnel sections with the stationary horizontal tunnels would be the main engineering problem, Hadley asserts.

The proposed route would be 5 mi shorter to Bremerton, largest cross-Sound city, than the Vashon Island route further south.

A similar proposal was made in 1948 (ENR Sept. 23, 1948, p. 1) by Charles E. Andrew, but was lost in a political shuffle over a ferry system.

Paper co's. to cease dumping wastes

With the deadline set by Oregon Sanitary Commission requiring paper manufacturers to cease dumping sulphite waste into state rivers and streams less than a year and a half away, two of the companies affected have come up with plans for complying.

Crown Zellerbach Corp. is experimenting with a process at its Lebanon mill which provides for use of an ammonia and sulphur base for cooking, rather than bisulphite of calcium.

Oregon Pulp & Paper Co. is experimenting in ponding wastes from its mill at Salem during low water season, and releasing them during high water periods, when swift currents would carry the sulphites away.

• **Pilot for pulp**–A $200,000 pilot plant, which Crown Zellerbach expects to have in operation at Lebanon soon after the first of the year, is full size industrial equipment. Only one-tenth of the present waste liquid will be treated in the pilot study, but if thorough tests indicate the process will work successfully, more equipment will be added to treat the entire output of the Lebanon mill.

Production of pulp from an ammonia base is not new. Two mills in the United States and one in Sweden use variations of the process. The two American plants are operated one by Rayonier Pulp Co. at Shelton, Wash., and the other by the Eastern Corp. in Maine.

• **Sulphur and fish**–The process to be employed at Lebanon, however, is claimed to have some advantages over all previous experiments. As in the other plants using the ammonia and sulphur base, the waste will be burned after being concentrated by evaporation, but much sulphur may be reclaimed and used over and over again.

Paper manufacturing circles object to the word "pollution" since the waste their plants dump into the rivers is sterile. However, the chemicals have an affinity for oxygen. If the concentration is too great there is not sufficient oxygen left in the water to sustain fish life. Because fishing is Oregon's third largest industry the sanitary commission remains completely firm in its demands that streams be ridden of sulphite as quickly as possible.

Water Policy Commission plans action

A national water policy is being forged by the President's Water Resources Policy Commission in terms more concrete than its report. (ENR Dec. 21 p. 23)

With the monumental survey behind it, the commission is now drafting legislation for Congressional approval during the busy defense sessions of the next two years.

It is generally expected in Washington that this legislation will spell out in detail the specific recommendations made by the commission in seeking the maximum sustained use of our water resources, including groundwater, for the prosperity of the country.

• **The short term**—For the immediate present the commission's short term policy would speed to completion all existing jobs under construction; limit new projects to those needed for defense or clearly in line with revised and approved basin plans; push basin program reviews and the collection of basic data; and give priority to work programs aimed at safeguarding present and future projects.

Over the longer term the commission is expected to ask Congress to set up not only a Federal Board of Review, but a standard system for evaluating the basin projects commanding attention from various interagency groups.

Specifically, a standard system of measuring the cost of basin programs may be suggested, and a standard method of measuring benefits and revenues worked out. Primary benefits would be stated in dollar figures, to be computed in a regular fashion for all basins. Secondary benefits would be measured in terms of increased national income.

Where benefits do not balance direct and indirect costs, the commission would have the Federal Board of Review pass on a program's merits by assigning some consideration to general welfare benefits before discarding an otherwise unattractive undertaking.

• **Six year patterns**—Machinery for financing basin developments will also, in all likelihood, be woven into the fabric of the new legislation.

The hand-to-mouth system of appropriation from Congress-to-Congress, would be modified through over-all planning by the proposed review board and the various proposed basin commissions. The aim would be to create a six-year program for each basin, with annual allotments worked out first for the whole basin and then by projects, functions and agencies.

As finally presented to Congress, the appropriation request would represent the long-term thinking of the various basin commissions as refined by the proposed review board and the Bureau of the Budget.

• **The take**—Federal intake of funds from basin projects may also be detailed in implimenting legislation now being drafted.

General policy foreshadowed in the recent report would aim at recapturing from federal water resources investment a portion of the benefits accruing to local beneficiaries of the public projects.

Uniformity is to be sought for each specific function such as reclamation, whether by irrigation or drainage.

• **One but diverse**—Principles now in mind for repayment of the government vary by type of undertaking. On hydroelectric power and water for industrial and domestic use full repayment with interest within a reasonable period is contemplated.

Irrigation, drainage and watershed management would command repayment without interest on the basis of ability to pay. Full reimbursement would not be required on these projects.

For navigation improvements payment in full with interest is contemplated by putting all forms of transportation using newly developed facilities on a cost basis.

States would share other primary and secondary benefit repayments on an agreed basis, the federal government paying for general welfare benefits.

◆

Watershed needs stressed at inter-agency meeting

Oklahoma outlined its watershed needs at a recent Arkansas-White-Red River inter-agency committee conference.

State experts stressed:

• **Flood control**—Conservation and water control, they said, should be started as near the upper reaches of the watersheds as is feasible to insure maximum control and minimum soil losses.

• **Municipal water supply**—No reservoir should be built which does not provide storage for beneficial use of available water without jeopardizing downstream development.

• **Irrigation and drainage**—There are 5,000,000 acres in 16 areas in Oklahoma promising feasibility of irrigation development.

• **Public health**—In planning resources development, states should check projects for health hazards.

KOREAN BRIDGE SCRAMBLE—Refugees from threatened areas in North Korea mingle with residents of Pyongyang in a hazardous crawl over twisted steel of a shattered section of the city's vehicular bridge over the Taedong River. Advancing Chinese Communists precipitated the desperate trip. (Wide World Photo)

Harbor sewage problem put before legislature

Would give Boston harbor sewage disposal project to Metropolitan District Commission; city would be assessed

A new bill has been filed on Beacon Hill for action by the 1951 Massachusetts State Legislature to clear up sewage in Boston harbor.

Under the measure the Metropolitan District Commission would have charge of the project, the city of Boston being assessed for the work on much the same basis it now is as a member of the Metropolitan District Commission water supply system.

• **To cost millions**—Cost of the project is estimated at around $10,000,000, although some experts believe it will take much more.

In 1949 the state legislature obligated Boston to commence construction of a sewage treatment plant not later than April of this year. The site for the plant was Calf Pasture in Dorchester. Since then, activities of the Boston Housing Authority and the development of the shores of Dorchester Bay for institutional housing and recreation facilities has made further treatment and disposal impossible in that area.

• **Rock tunnels proposed**—Part of the commission's recommendations are two proposed rock tunnels running three or four hundred feet below water surface to Deer Island in Boston Harbor where MDC plans a sewage treatment plant similar to the one now nearing completion on Nut Island.

NLRB switches policy on Communists; contractors fight Red labor leaders

Boiling problem in Washington: What to do with Communist-led labor organizations?

This week the Construction Contractors Council in Washington, D. C., threatened to stop $10,000 weekly payments for two welfare funds of AFL Building Laborers' Locals 74 and 764. They demanded resignation of Henry Thomas, Local 74 president and admitted Communist, from his trusteeship of the welfare fund. (Employer trustees have refused to sit in the same room with Thomas.)

At the same time the contractors notified the Laborers' District Council which represents some seven building laborers' locals that they would negotiate no new contracts with locals if the latter are represented in bargaining by Communists.

• **The carpet slides**—The contractors in taking this position may have had the carpet pulled out from under them, however, by a decision of the U. S. Court of Appeals in the recent West Texas Utilities Co. case.

Ever since the Taft-Hartley law was passed more than three years ago employers have observed a policy of not bargaining with unions whose officers have not signed non-Communist affidavits.

This policy the Washington contractors are trying to follow, probably on the assumption that a year-old policy of the National Labor Relations Board is still good. The board last year ruled 3-2 that Andrews Co., Spartansburg, S. C., did not have to bargain with an AFL union which was not in compliance with Taft-Hartley at the time the union sought to bargain.

• **The reverse side**—But the board has reversed itself. Basis: the decision of the Court of Appeals which was not of the opinion that employers may take matters into their own hands and refuse to bargain with a union because its officers have not filed non-Communist affidavits. Only the National Labor Relations Board can refuse its processes to the non-complying union, the court ruled. The employer cannot.

In line with this decision NLRB has decided against the action of the New Jersey Carpet Mills, Inc., of Englishtown, N. J., in its battle with the CIO Textile Workers which sought company recognition without having its leaders sign affidavits. The mills were ordered to bargain with the union and to recognize it. The decision of the board is unanimous on this point.

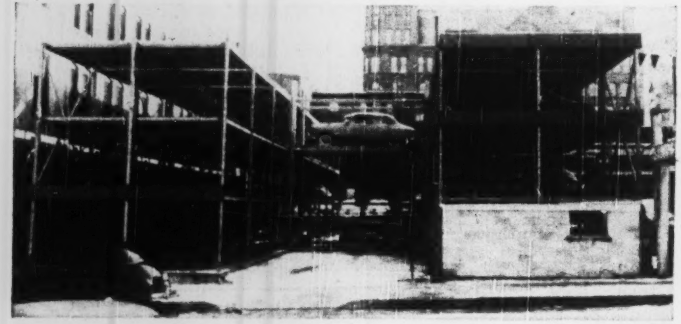
• **The penalty**—However non-complying unions which have not signed affidavits cannot have the help of the board in holding bargaining elections, or union shop elections. The board will not certify non-complying unions nor issue complaints of unfair labor practices on behalf of such unions.

Still open to question: Where employers stand who refuse to bargain with a union and formally give the board a reason (as New Jersey Carpet did not).

• **Unions help**—Backing up the contractors is the Washington Building Trades Council made up of all AFL construction crafts unions. The council has expelled Thomas as a delegate. Two other officers of Local 74 have also been refused by the council as Communists.

In testimony before the House Un-American Activities Committee Thomas admitted that he resigned from the Communist party in April 1949 but continued to believe in its principles and confer with Communists.

The Dept. of Justice is investigating affidavits signed by Thomas and other union leaders suspected of being Communists or following the party line.



PIGEONHOLE PARKING—Vaughn and Leo Sanders of Spokane, Wash., are the designers and the Peters Co., Portland, Ore., fabricators of this method of car-parking by mechanical stacking. Cars are driven into a ground-floor stall (behind the office) where the owners get out, lock the doors and go on their way. An attendant "parks" automobiles with an electro-hydraulic transfer elevator—which moves its cargo both horizontally and vertically. Illustrated is the initial 142-car installation. (John M. Bemis photo)

◆

Crown agency handles Canada's defense needs

Defense Construction Ltd. set up to handle Canadian defense building of $100,000 construction program

Trade Minister Howe announced in Ottawa formation of a new Crown Company, Defense Construction Ltd.

The new company will handle contracts for Canadian defense work, taking over from Canadian Commercial Corp. until recently charged with that duty.

Need for the Crown Company stems from the great speed-up in Canada's $100 million defense construction program.

President and general manager of the new company is R. G. Johnston, on loan to the government from his post as general manager of the Canadian Construction Association. Construction personnel and facilities of Central Mortgage and Housing Corp. are available to assist the new company.

Private consulting engineers will be hired for supervision of special projects.

Contracts for construction now held under Canadian Commercial Corp. are automatically transferred to Defense Construction Ltd.

All tenders will be similarly transferred automatically.

Crown companies are a Canadian equivalent to independent agencies in the American governmental system. They are set up as regular companies with boards of directors and officers. All stock is held by a minister of the Crown in trust for the King. The companies then operate outside the normal framework of government and the civil service commission but are obliged to make annual reports to the Parliament.

Canadian Commercial Corp. is the main purchasing agency of the Canadian government.

CONSTRUCTION BUSINESS

Industry pushes expansion programs

Chemicals, oils and metals lead the biggest industrial expansion the United States has seen. The geographical characteristics of this expansion were reported by the Territorial Information Department of four public utilities in Illinois (ENR Dec. 21, p. 27). The types of industries most affected by this expansion are reported:

• **Type of industry**—The chemical industry leads this expansion program with Texas getting the lion's share of the plants, 26% of the total.

Petroleum and coal expansion is second, again with Texas out front with almost 45% of the plants.

Primary metals, third, put Pennsylvania in the lead with 31% of the investment.

Food is fourth. Illinois is on top with almost 16% of this more widely dispersed industry.

Transportation equipment, fifth, puts Michigan in the lead in its field with almost 31% of the new plant.

Paper is sixth and Alabama first in this industry development with 22% of the new investment in large plants.

Textiles rank seventh and South Carolina has almost 19% of the postwar expansion.

Fabricated metal is eighth and Illinois heads the states with a little more than 19% of the new facilities.

Stone, clay and glass rank eighth. California is on top with 22% of this.

Machinery, except electrical is tenth and Illinois carries off top honors with over 26%.

Eleven other categories of industry account for the rest of this expansion.

Industrial expansion by industries

Industry	Millions of Dollars U. S. Total	High State	State Amt
Total	$2,811.4	Tex.	$438.3
1 Chemicals	535.6	Tex.	139.9
2 Petroleum, coal	452.8	Tex.	202.4
3 Primary metals	384.5	Pa.	118.1
4 Food	289.9	Ill.	45.4
5 Transp. Equip	200.3	Mich.	61.8
6 Paper	191.7	Ala.	42.2
7 Textiles	106.3	S.Car.	19.8
8 Fabr. Metal	104.1	Ill.	20.2
9 Stone, Clay Gl	103.5	Calif	22.9
10 Machy. exc elect	102.3	Ill.	27.0

The character of industry expenditures has changed. Immediately following World War II many production facilities were constructed to replace or rehabilitate existing facilities. Now a considerable number of major projects are being contracted for as companies adjust capacity to meet demand and further expand operations by establishing branch factories.

The Territorial Information Department developed these facts for Commonwealth Edison Company, Public Service Company of Northern Illinois, Western United Gas and Electric Company, and Illinois Northern Utilities Company.

Since this study was made industrial building has gone into even higher gear. The 1950 volume of new plants tops all previous records. Through June it averaged $23.3 million a week.

Since June the contract award rate has averaged $43.5 million a week and this does not include contracts for atomic energy or H-bomb fuel plants let by the federal government.

◆

Lumber orders vs output

New orders for lumber were just 0.3% below production for the week ending Dec. 9 as reported to the National Lumber Manufacturers Association by 349 reporting softwood mills. Shipments were 13.3% below production.

Compared with the same week last year new orders are 2.5% higher, shipments 13.4% lower and production 0.7% higher.

◆

Cost index rises

• **Turner Construction Co.** building cost index hit 452 in October, an all time high. This is up 8.5% since June, 11% since February and it is 5% higher than the previous record high in September, 1948. 1913 is 100.

• **Associated General Contractors** building cost index for November, 1950 holds at 371, also its October value. Wages, however are up to 494 from 491 in October but materials backed down to 290 from 291 in October, all based on 1913 as 100.

◆

Construction volume: 1950

(Continued from page 13)

But the industrial and commercial boom moved right in, sparked by fear of eventual controls, by manufacturers' desire to continue meeting civilian demand for goods and services.

• **Tough forecasting**—1950 was an unpredictable year, and 1951 promises to be more unpredictable still. The question of what controls and where—and what military and defense building and where—are such as to make any statistician shy of venturing a printable prediction.

One evidence of forecasting troubles can be found in the last three weeks of December, when in two contracts alone the Atomic Energy Commission brought in $760,000,000 worth of new construction.

◆

Construction money in Second Deficiency bill

Passed by the House and now to be acted on by the Senate, these appropriations of $2 billion for defense construction are included in the $18-billion second deficiency bill, H.R. 9920:

Dept. of Commerce:		
Bur. of Pub. Rds. (Inter-American Highway)		$4,000,000
Natl. Bur. Stds. (const. of laboratories)		1,400,000
Dept. of Interior:		
Southeastern Power Adm. (transmission facilities from Buggs Island Dam to Langley Field, Va.)		1,850,000
Bonneville Power Adm. (transmission line No. 5 and appurtenant facilities from Grand Coulee Dam to Spokane, Wash.)		1,450,000
Independent Offices:		
Atomic Energy Comm. (const. of addtl. production facilities.)		840,000,000
Natl. Advisory Comm. for Aeronautics (for modernization of altitude wind tunnel at Lewis Flight Propulsion Lab.)		1,818,000
Tennessee Valley Authority ($22,500,000 to initiate additional power generating facil. and $42,000,000 for power generation and transmission facilities for use in the atomic energy program)		64,500,000
Maritime Commission: reactivation of shipyards		15,000,000
Dept. of Defense:		
Military const., Army		319,700,000
Navy public works		303,378,000
Signal Corps construction		464,000
Coast Guard (Acq., const. & impvt.)		7,900,000
Dept. of the Air Force (Acquisition & Construction of Real Property)		807,000,000
Project Planning & engineering	$33,838,000	
Facil. to support AF operations	410,100,000	
Training facil. in U. S.	88,600,000	
Depots & logistical facil.	99,300,000	
Commun., facil. & navig. aids	35,400,000	
Priority research, dvlpmt & test facil.	52,000,000	
Classified facilities	20,400,000	
Other construction	33,400,000	
Expan. of land-based aircraft control & warning system	34,000,000	

Facilities to support Air Force operations ($410,100,000 above plus maintenance money) is for the following:

Airfield pavements	$103,400,000
Fuel storage & dispensing facil.	95,300,000
Operational facil. & plant maintenance	106,800,000
Troop housing	115,700,000
Utilities & ground improvements	136,900,000

In addition, another $2 billion will be needed for construction before the current fiscal year ends in June, 1951. Navy will need $610 million more and Air Force $1,200 million more before June. Atomic Energy Commission's $1,050 million, originally requested, has been cut to $840 million, with the other $210 million scheduled to come up in the appropriations for the next fiscal year.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 47, went to press.)

Railroad Reconstruction—Morrison-Knudsen Co., Inc., Boise, Idaho, has been awarded a $15,000,000 contract for reconstructing 350 miles Venezuelan National Railroad, by the Government of Venezuela, Caracas.

Aircraft Propeller Plant—General Motors Corp., Aeroproducts Div., Vandalia, O., announced preliminary plans to build a $10,000,000 plant at Vandalia, to manufacture aircraft propellers. This will double capacity of present plant.

Power Plant—Sioux Falls Construction Co., Sioux Falls, S. D., will build a $6,000,000 power plant at Sioux Falls, for the Northern States Power Co., Minneapolis, Minn. Pioneer Engineering & Service Co., Chicago, Ill., is consulting engineer.

Fertilizer Plant—Consolidated Mining & Smelting Co. of Canada, Ltd., Montreal, Que. plans to construct an addition to fertilizer production plant at Kimberly, B. C. to cost $9,000,000. Plans are also being prepared for a high voltage transmission line from hydro electric plant on Kootenay River to Kimberly to cost $2,850,000.

Shopping Center—Southtown Investment Corp., ℅ Beerman Realty Co., Dayton, O. will construct with own forces a shopping center at Dayton, to cost $4,000,000.

Housing—Birmingham Housing Authority, Birmingham, Ala. awarded contract to construct a housing project to G. A. Paul Construction Co., Birmingham, at $4,034,902.

Medical Science Building—Clinton Construction Co., San Francisco, Calif., has been given a $3,634,000 contract to erect 13-story medical science building at the University of California, in San Francisco, by the Regents of the University of California, Berkeley.

Hospital—St. Elizabeth's Hospital, Dayton, O. is taking bids for $3,600,000 hospital addition. Schmidt, Garden & Erickson, Chicago, Ill., are architects.

Power Development—Ungara Power Co., Ltd., Montreal, Que. plans power development in Eaton Canyon, Ungara, Que. Estimated cost of project is $10,000,000. Montreal Engineering Co., Ltd., Montreal, is engineer.

Plant—Cameron Iron Works, Inc., Houston, plans a $5,000,000 plant at Houston, Tex., Lockwood & Andrews, Houston, are engineers.

Hospital—Baptist Hospital, Memphis, Tenn. is taking bids for the construction of a $5,500,000 addition. Walk C. Jones-Walk C. Jones, Jr., Memphis, are architects, and Samuel Hannaford & Sons, Cincinnati, O., are consulting architects.

Plant—Mid-States Gummed Paper Co., Div., Minnesota Mining & Manufacturing Co., Chicago, Ill. has purchased a 114 acre site at Bedford Park, Ill. A $4,000,000 plant will be constructed but project depends on economic situation.

Schools—City of Meridian, Mass., voted $3,000,000 bonds for school improvements.

Folson Power Plant Generator—Westinghouse Electric Corp., Denver, Colo., was low bidder at $2,535,000 for generator for Folsom Power Plant, Central Valley Project, Sacramento County, California. The Bureau of Reclamation, Denver, Colo., opened bids December 12.

Road—Latrobe Road Construction, Inc., Latrobe, Pa. has been awarded a $2,801,332 contract by the Pennsylvania Department of Highways, Harrisburg, for improving highway and constructing bridge in Westmoreland and Indiana Counties.

Hospital—Department of Public Works, City of New York, will open bids December 31, for construction of an addition to the Queens General Hospital, Jamaica, N. Y.

Carbon Black Plant—Cabot Carbon Co., subsidiary of Godfrey L. Cabot, Inc., Boston, plans to build a $4,000,000 carbon black plant on Bayou Sale, in St. Mary's Parish.

Sewage Treatment Plant—Edward A. McCarthy & Sons Co., Cincinnati, O., submitted a low bid of $1,124,227 for the construction of a sewage disposal plant at Columbus, Ind., when the Board of Public Works, Columbus, opened bids December 15. James M. Rotz Engineering Co., Indianapolis, is engineer.

Carpet Factory—City of Greenville, Miss., will sell bonds under law designed to help communities attract new industries to construct a $4,000,000 factory. Alexander Smith & Sons Carpet Co., Yonkers, N. Y., will operate the plant.

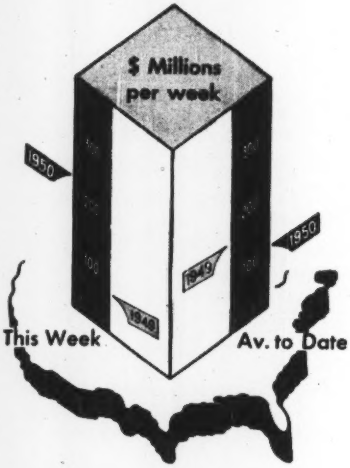
COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost	Dec.'50	528.73	254.16	110.84
Bldg. Cost	Dec.'50	390.14	210.89	110.90
Volume	Nov.'50	410	167	118

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	Week of Dec. 28, '50	Cumulative 52 wks 1950	Cumulative 52 wks 1949	% chge
Federal	$3.0	$1,896.6	$1,184.7	+60
State & Mun.	59.8	3,784.5	3,110.4	+22
Total Public	$62.7	5,681.1	4,295.2	+32
Total Private	48.5	6,670.5	3,862.2	+73
U. S. Total	$111.2	$12,351.6	$8,157.4	+51

Contracts by type of work

	This Week	Cumulative 52 wks 1950	Cumulative 52 wks 1949	% chge
Waterworks	$ .9	$214.6	$207.2	+ 4
Sewerage	1.4	287.5	277.2	+ 4
Bridges	5.0	369.4	356.6	+ 4
Highways	21.2	1,268.2	897.2	+41
Earthwork, Waterways	1.2	416.6	524.2	−21
Buildings:				
Public	18.5	2,405.6	1,368.2	+76
Housg., pub.	11.5	359.0	367.5	− 2
Housg., priv.	12.4	3,116.8	1,833.1	+70
Commercial	12.9	975.1	573.0	+70
Industrial	21.9	1,682.9	950.0	+77
Unclassified	4.3	1,255.9	803.2	+56

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Cumulative 52 wks
NON-FEDERAL	
Corporate Securities	
State and Municipal:	(Figures not available)
Excl. housing	
Housing	
FEDERAL	

Electric power seen ample for war needs

Wilson says manpower will become a bottleneck before electric power, providing schedules are followed

Power requirements of the U. S. have been foreseen and the electric utility industry has done a masterful job of planning and preparing for present and future needs, Charles E. Wilson told an engineer group in Washington while he was still president of the General Electric Co.

Wilson pointed up the versatility of electric power when he said that it could be either "a two-edged sword or a double-bladed plowshare, as you please." He stated also that the electrical manufacturing industry has forecast and planned carefully and provided the facilities to supply the equipment needed. It is said that today there is enough power to meet present needs, with a safe reserve margin.

The electrical industry assumes—on the basis of comprehensive surveys and forecasts on heavy production of civilian goods and power commitments for war production (including some lengthening of the work week) —a power load, or total demand, of 416 billion kw-hr for 1953. This is 43% higher than in 1949.

- **Delivery of equipment a factor**—Wilson emphasized that these totals are predicated upon delivery of all power-generating equipment on order and scheduled through the first half of 1953. It is assumed also that power suppliers will be permitted to install the additional capacity planned for the latter half of that year. The nation should then have a margin of reserve capacity 20% above the estimated load peak in 1953.

Although the electric power industry must have available enough generating equipment to meet peak demand, full capacity is not needed for a large part of a normal day. Current consumption is spread over many working hours.

- **Possibilities**—In the judgment of the electrical industry, there will be no power shortage unless one or more of the following occurs:

1. If major war production sites, such as aluminum plants and special new bomb projects, are heedlessly located in sections of the country where power cannot be supplied readily.
2. If present manufacturing facilities for utility power supply equipment are diverted to other purposes, delaying production schedules of equipment on order.
3. If materials necessary for this equipment are not made available as a part of the defense program.

Less equipment shipped

Shipments of excavating and earthmoving equipment, including off-highway trucks and trailers, during the third quarter of 1950 were valued at $146 million—according to the Bureau of the Census, Department of Commerce. This represents a slight decrease from shipments of these products, valued at $150 million, in the second quarter of the year.

Dugway and Deseret work to cost $22 million

An area office of the U. S. District Engineers Corps, San Francisco, has been opened in Salt Lake City, Utah, to handle construction details of the multimillion dollar development at Dugway and Deseret, Tooele County.

The project, under the military public works bill, calls for an expenditure of some $22 million. It is under the direction of Col. H. G. Gerdes, Army Engineer Corps. Ashton, Evans and Brazier, architects, of Salt Lake City, have been appointed architect-engineers for the project, according to Col. Gerdes. Offices have been established at 10 W. First South St. in Salt Lake City.

The Dugway and Deseret projects, linked with tests of heavy explosives and chemical warfare, are to include the expenditure of an estimated $3 million for housing, $4 million for work buildings, $2 million for utilities and roads and $1 million for recreation and community facilities.

Power company starts big dam on Snake River

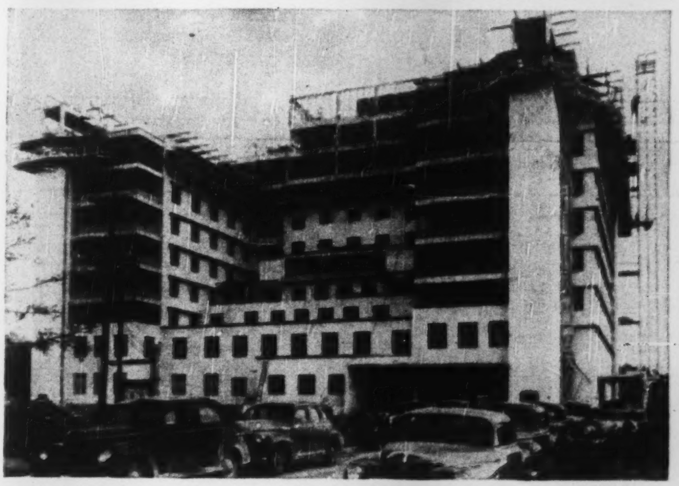
The Idaho Power Co. has begun construction of an $18,500,000 hydroelectric development on the Snake River 20 mi. from Mountain Home, Ida., with Morrison-Knudsen Co. holding the contract.

The dam, 3000 ft. long and 120 ft. high, will be an earthfill structure with rock surface about 740 ft. wide at the bottom and 20 ft. at the top.

Completion is proposed for early 1952, with the first of three generating units expected to go on the line at that time. Third unit will be installed three months later. The generators will have a combined installed capacity of 82,500 kilowatts, with an anticipated 90,000-kilowatt output during periods of top production.

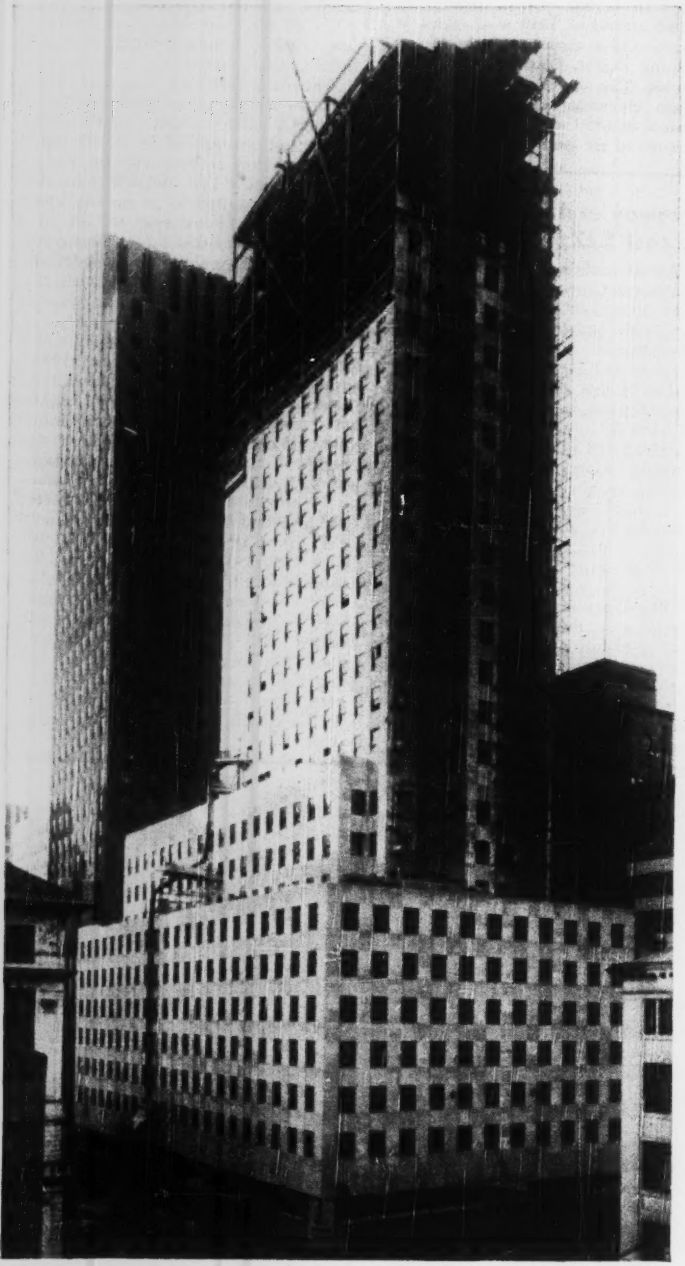
The plant will be the sixth constructed by the company since 1946 and the largest on the interconnected electric system serving southern Idaho and eastern Oregon. Construction crews have begun work erecting an eight-mile access road and excavation at the river canyon site will begin soon.

Five more dams on the Snake River are proposed by the company should the Bureau of Reclamation fail to obtain Congressional approval for its proposed Hell's Canyon Dam on the river. The five, between Weiser and Hell's Canyon, would cost an estimated $175,000,000 and produce about the same amount of power as the single proposed Bureau of Reclamation structure, according to T. E. Roach, power company president.



TEXAS HOSPITAL—The Texas Medical Center, under construction at Houston, includes the $3.5 million Methodist Hospital, here shown about 75% completed. Construction under way will provide facilities for 500 beds, and will cost about $10.5 million.

Machines save time in erecting skyscraper



SINCLAIR OIL BUILDING went up fast alongside Rockefeller Center. Steel was erected in 4 months; masons did better than two stories per week on exterior.

Sometimes it seems as if a New Yorker just blinks his eyes—and when he opens them, there is another addition to the city's skyline. That was particularly true when the steel frame of the 26-story Sinclair Oil Building suddenly appeared amid Rockefeller Center skyscrapers.

Credit for rapid progress on this structure is due to organization of the job, use of mechanical materials-handling equipment and type of floor system. Excavation started Dec. 8, 1949, and was completed March 27. Steel erection started April 17, and all 5,200 tons were in place by Aug. 23. Floors went in as soon as derricks were jumped.

• How speed was made—Organization overcame Manhattan's perennial handicaps of a building site in a traffic-congested region and lack of storage space. It also was an important factor in overcoming problems involved in installing large quantities of mechanical equipment, especially for the air-conditioning system.

Material deliveries were so timed that materials were available when needed, yet did not require storage for long enough to interfere with other operations. This required careful coordination of the various trades, assignment of limited storage areas to subcontractors and strict adherence to the time schedule set up for use of hoists.

Trucks carrying building materials drove right into the building and were unloaded rapidly with a fork-lift truck. Materials were stored temporarily on the first floor until a hoist was available. Then, the fork-lift truck picked them up and placed them on the hoist for distribution to upper floors.

Bricks were delivered in 24-pallet truckloads. Each pallet carried 330 bricks. After pallets were hoisted to various floors, they were removed from the hoist by a hand lift truck and distributed to bricklayers. Hydraulically operated, the truck could be jacked down to slide under a pallet and then jacked up to raise the load off the floor.

• Floors follow steel up—Early distribution and storage of materials on the upper level was made possible by speedy placement of the floors, which in turn was feasible because of the use of steel decking. This material was delivered in corrugated-surfaced sections 2 ft wide and up to about 21 ft long, which two men could handle. Before the steel erector's derricks made their usual two-story jump, they hoisted the decking to the floors just erected, and as soon as the derricks were jumped, iron workers distributed the decking over the two new floors, leaving space around the steel columns for riveters to complete connections.

The decking was welded to the floorbeams. Then, it was leveled off with a lightweight concrete fill so that materials-handling equipment could ride over the floor smoothly.

Stairs went up with the steel floors. Thus, workmen could go more easily and rapidly from floor to floor and with greater safety than if they had to climb ladders.

Pouring of concrete floors in the service core (elevator lobbies, stair landings, toilets) proceeded closely behind the steel decking, but of course, these areas were not available for storage or movement of materials as early as the steel decking. Finally, when the exterior wall was built, a lightweight concrete fill and a cement-mortar finish were placed over the decking.

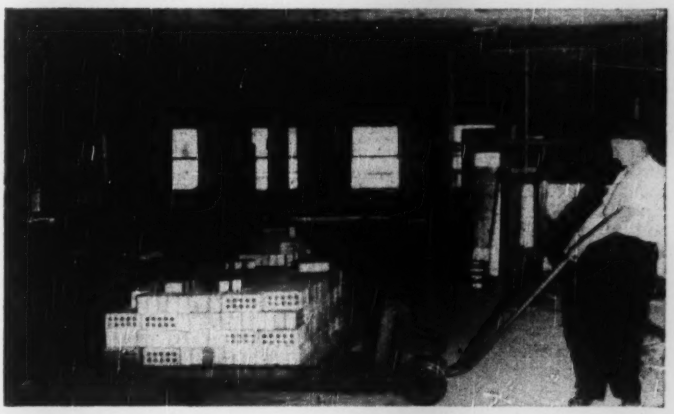
Mixed-in-transit concrete was used for basement, first and second floors. After the first floor was poured, timber decking and shores were installed to permit movement of trucks within the building. From this stage on, aggregates for concrete were dumped into a hopper and mixed on the job. The concrete mixer was placed in the sub-basement near a hoist, which lifted concrete-laden buggies to various working levels.

• **Masonry construction**—Manufacture of masonry mortar was by a gravity-flow process. A mixed-in-transit sand-lime mixture was poured through a hole in the first floor into a 20-cu yd hopper in the basement. This hopper had an electrically operated screw drive with push-button control. Cement also was chuted through an opening in the first floor but was stored on a temporary mezzanine in the basement adjacent to the sand-lime hopper.

Correct proportions of sand-lime mortar and cement were obtained by volume measurements in a batch hopper mounted on a mortar mixer on the basement floor. The mixer fed a hopper in the sub-basement, which in turn loaded wheelbarrows. Finally, the mortar was carried to the working floors in one of two masonry hoists and distributed to the bricklayers.

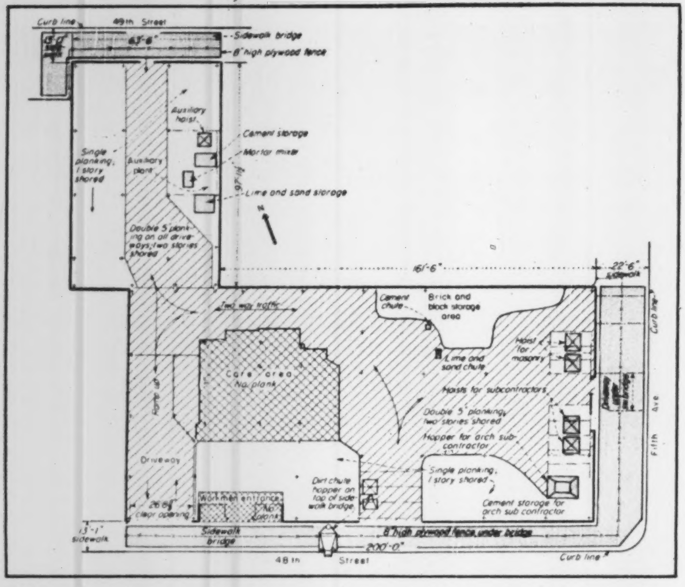
Limestone for the exterior facing of the building was raised by derrick, because of the large size of the stone and the volume required. A stiffleg derrick and two Chicago booms were

FORK LIFT TRUCK removed materials (metal lath shown here) from delivery trucks, which drove into the building. First floor was planked over for the purpose.



PALLETS, carrying 330 bricks each, were picked up with an hydraulically operated hand lift truck for distribution to bricklayers.

STEEL DECKING was placed as soon as derricks were jumped, then leveled off with lightweight fill to provide smooth floor for materials-handling equipment.


Curb line
49th Street
Sidewalk bridge
8' high plywood fence
63'-6"
15'-0"
Auxiliary hoist
Cement storage
Mortar mixer
Lime and sand storage
Single planking, 1 story shored
Auxiliary plant
97'-11
N
Double 5' planking on all driveways, two stories shored
161'-6"
22'-6" sidewalk
Two way traffic
Cement chute
Brick and block storage area
Lime and sand chute
Hoist for masonry
Curb line
Core area No plank
Ramp up
Hoists for subcontractors
Double 5' planking, two stories shored
Hopper for arch subcontractor
Fifth Ave
Driveway
Single planking, 1 story shored
Dirt chute hopper on top of sidewalk bridge
Workmen entrance
No plank
26'-6" clear opening
Cement storage for arch sub contractor
13'-1" sidewalk
Sidewalk bridge
8' high plywood fence under bridge
200'-0"
48th Street
Curb line

FIRST FLOOR was used by the contractor for receiving materials and temporary storage until materials could be hoisted to upper floors.

used both for hoisting and setting up to the 11th floor. During this stage, the sidewalk bridge, which was designed for 300 psf, served as a sorting and cutting area for the stone. Hoisting engines for the derricks were on the second floor, freeing first floor and basement for other construction purposes.

For the tower section above the 11th floor, a change in derrick location was necessary. A Chicago boom hoisted stone to the 11th floor roof, which was used as a sorting area. The stone was raised from this level and set in place by a stiffleg derrick on the penthouse roof.

Setting of stone on the east half of the building was controlled to some extent by the presence of hoisting towers on the outside of the structure. Consequently, except for the south elevation, stone was set by ponies after being hoisted to the various floors by a Chicago boom at the 24th floor. This boom also set stone for the south elevation.

From the 11th floor up, erection of exterior limestone has progressed at a rate of more than 2 stories per week.

• Height is 28 stories—Though the Sinclair Oil Building has 26 office floors, actually it is several stories higher. There is a floor between the 10th and 11th floors, and one above the 26 for air-conditioning equipment. And an aluminum-louvered penthouse projects another 26 ft above the main roof, which is 341 ft above the lobby floor.

The structure is L-shaped in plan at street level. It fronts 100 ft on Fifth Ave. and 200 ft. on 48th St. A 6-story, 63-ft wide, 100-ft long wing extends through the block to 49th St. The tower, which is 56x126 ft, starts at the 11th floor and extends to the main roof without setbacks.

Net area of office space on the lower floors is 18,850 sq ft per floor, and for the tower floors 4,600 sq ft per floor. Total rentable area is 301,000 sq ft.

• Lightweight design—Compared with other New York City skyscrapers, this one is of lightweight construction. In office areas, the structural steel frame is fireproofed with 1-in. thick perlite plaster and in the service core with foamed concrete, which weigh a great deal less than conventional plaster and concrete.

Ceilings in the office areas are 1-in. thick perlite plaster on expanded metal lath, suspended from the steel decking on 1x$\frac{3}{16}$-in. hangars at 4-ft intervals. Double suspended ceilings enclose the space around air-conditioning ducts. Single suspended ceilings are used in core areas, with 2-in. plaster fire stops around the perimeter. Floors in the core are foamed concrete finished with terrazzo in elevator lobbies and tile in toilets.

Floors in office areas also help account for the lighter weight of this building. The steel decking weighs only 8 psf. And it carries a $2\frac{5}{8}$-in. lightweight fill of foamed concrete, which further keeps the weight down. The fill is finished with 1 in. of cement mortar. Total dead load of floors and ceilings, exclusive of weight of ducts, is only about 60 psf.

Decking is of light-gage steel formed into cells spaced 6 in. on centers. This is the first such installation in a major building in New York City (ENR Feb. 16, p25).

In addition to being a structural floor in itself, it also serves as an under-floor duct system for electric wiring. A header duct placed on top of the decking at right angles to the cells carries wires from a panel box to any of the cells. Thus, tenants can have outlets at almost any point on a floor by tapping a cell.

Lower dead load due to this floor construction permits use of a lighter structural frame and foundations, so that the saving in weight over conventional structures is considerable.

The exterior of the building, however, is more commonplace. Walls are 4-in. thick Indiana limestone, backed up with 8 in. of brick, furred and plastered on the inside. Windows have steel sash and are double-hung.

• Absorption-type refrigeration—The building will be fully air conditioned. A high-velocity system serving under-window units is used around the exterior and a conventional duct system in the interior.

Refrigeration equipment is located in the penthouse. It consists of four absorption-type units, each having a 275-ton capacity. These differ from conventional refrigerators in that the compressor is replaced by a vessel for absorbing refrigerant in a liquid and another vessel for driving off the refrigerant in gaseous form from the liquid.

The system employed in this building uses lithium bromide as an absorbent, water as a refrigerant and steam for evaporating the solution. Temperature is lowered through flash evaporation of water sprayed into a high vacuum. Advantage is taken of differences in fluid temperature, density and column height to maintain continuous flow through all circuits without moving parts. A heat exchanger is not needed; the refrigerant (water) is circulated in the chilled-water circuit.

Here is how the system works:

Lithium bromide has a high affinity for water vapor. In the absorber, water is brought into contact with the bromide, heat of absorption and latent heat being removed by a water-cooling coil. The concentrated solution flows to the generator, which is a vessel containing a steam coil. There, lithium bromide is separated from the water by boiling action and is returned to the absorber.

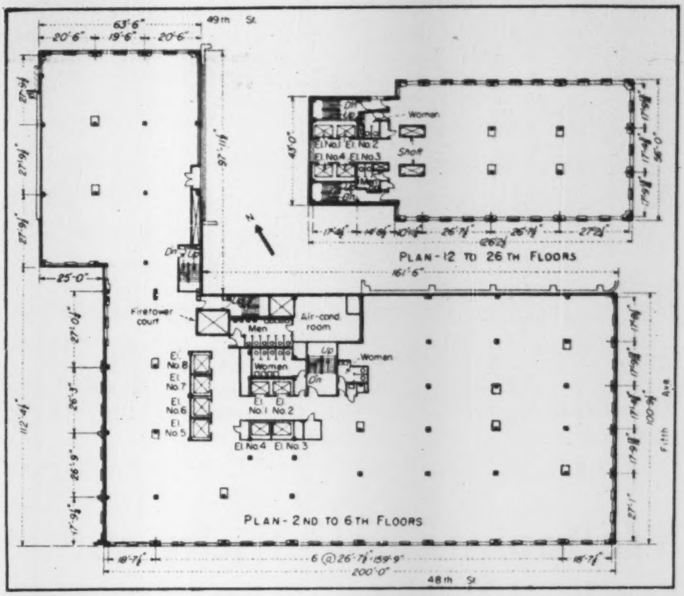
The water vapor passes through a water-cooled condenser, and the condensate is fed to an evaporator, or cooling coil. Low pressure in the evaporator lowers boiling temperature of the water to 42 F. The chilled water is then circulated through the building.

Steam, which also will be used for heating the structure, will be purchased from the New York Steam Co.

• Advantages of absorption type—Cost of operating this equipment is expected to be about the same as for conventional centrifugal compressors. The decision to use it was based on over-all economy of the initial installation, mainly because of conditions peculiar to this building:

The basement, in which the air-conditioning equipment might ordinarily be placed, is devoted to stores—like the interconnected basements of the buildings in adjoining Rockefeller Center. Space in the sub-basement is at a premium, being needed for storage and mechanical equipment. Excavation was expensive, so that digging still another basement would have been uneconomical. On the other hand, space for equipment was available at the top of the building.

There were no outstanding disadvantages in locating the absorption machines up there, since they have no moving parts and therefore are not subjected to vibration. There are, moreover, some economies in such a location: The equipment is near the cooling tower, so that the length of condensate piping is short; less pump horsepower is needed for condensing water, and there is a saving in steam piping due to elimination of auxiliary piping.



L-SHAPED in plan at street level, the building consists of a 6-story wing and a 28-story tower section. The tower starts at the 11th floor.

• Designers and builders—The Sinclair Oil Building is being built by the Massachusetts Mutual Life Insurance Co., which is leasing 10 floors to the company after which the edifice is named.

Carson & Lundin are the architects, with H. W. Underhill as clerk of the works. Edwards & Hjortlf were consulting structural engineers and Jaros, Baum & Bolles, mechanical engineers.

Turner Construction Co. is the general contractor. M. H. Parsons is project executive and Nils I. Nilsson superintendent of construction. Steel was erected by Bethlehem Steel Co., cellular decking was installed by H. H. Robertson Co., concrete floors and fill were placed by M. L. Oettel and plastering was done by James Kane. Alvord & Swift held the subcontract for heating, ventilation and air conditioning. Air conditioning equipment was designed and manufactured for this installation by the Carrier Corp., Syracuse, N. Y.

Design formulas for wood columns

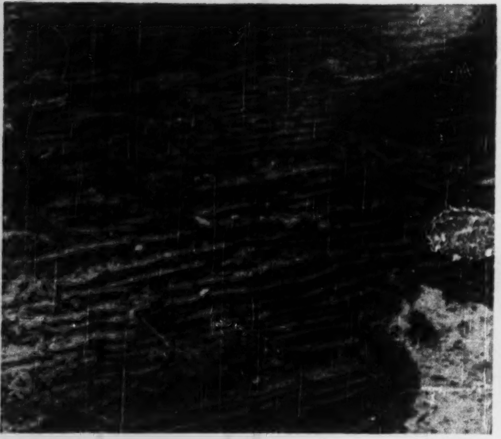
More than 100 tests made at Virginia Polytechnic Institute, Blacksburg, Va., on hollow, wood box columns show that this type of member may be more economical than solid wood columns. Design formulas were developed from the test data.

E. George Stern, research professor of wood construction and director of the wood research laboratory at VPI, concludes that lumber savings with the hollow columns increase as columns become more slender. Savings amount to 33% over 6-in. square solid columns and 53% over 12-in. square, solid built-up columns with cover plates, he says. These savings are made possible by the wider feasible variation in area of box columns made of standard lumber sizes in comparison with the limited variation in standard timber sizes available for solid columns.

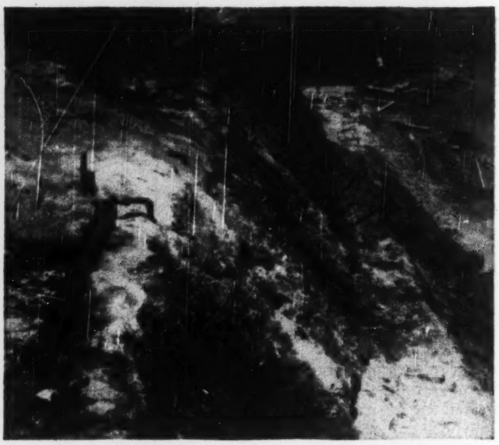
Professor Stern cautions, however, that savings in material may be offset by fabrication costs, which are particularly influenced by the good workmanship required for assembly. On the other hand, the usually ready availability of standard-size, 1 or 2-in. thick planks required for the assembly of box columns, in comparison with the necessity of securing solid column stock, may outweigh such increased cost, if any, for their assembly. Also, the design data presented should be applied only to box columns that are securely nailed, or nailed and glued. To secure joint rigidity in the VPI tests, the researchers used hardened, high-carbon steel, annularly grooved nails (ENR April 5, 1950, p 32).

None of the columns failed as a result of joint deficiency. Glue added little to the strength of nailed short columns but reduced buckling of long, slender columns. Spacer blocks, on the other hand, appeared to add little to the strength of box members tested.

Formulas currently used for design of wood columns, Professor Stern reports, are suitable for box-column design, if properly modified. Details of the tests and derived formulas are given in "Investigation of Wood Box Columns to Determine Formulas for Their Design," a thesis submitted by Prof. B. Y. Kinsey, Jr., to VPI.



QUESTION . . . . How to hold this odd formation of silt layers in a fairly steep bank while construction operations proceed.



ANSWER . . . . Wellpoint installation at two levels did the trick, even though actual water withdrawn was in small quantities.

Wellpoints hold tricky soil for building foundation

THE PROBLEM was simple enough: The Phoenix Fire Insurance Co. wanted to build its new four-story, $3,000,000 home office building on a plot in Hartford, Conn.

But it was the plot that complicated matters. Phoenix engineers had picked the corner of Woodland and Asylum avenues, in a pleasant, tree-shaded residential section. And investigation showed the soil underlying the trees and grass was a peculiar varved silt formation that had the particularly unpromising characteristic of becoming "quick" in the presence of a very few drops of water. Moreover, the condition extended to great depth. Test piles driven before excavation began penetrated at 1 to 2 blows per foot before fetching up on hardpan at 100-odd ft depth. This material which under its normal moisture conditions might have stood at 1 on 4 slope, had to be held at 1 on 1, to avoid the loss of great elms that the company wanted to preserve near the building line.

The solution was to use an extensive wellpoint installation to keep the silt's moisture content down so 1:1 banks could be maintained, and the trees saved. Banks as high as 35 ft were to be held. Another wellpoint function was to keep the subgrade dry enough for work.

What the Phoenix company wanted was an office building, roughly 315 ft x 300 ft, providing about 52,000 sq ft of office space in a structure that will be three stories high at the front end and four stories in the rear. The building is to have a steel frame, and be completely air conditioned.

• The trouble—When bulldozers got to work, they uncovered the silty layers of soil underneath—and they uncovered the anticipated trouble. Before wellpoint installation got underway, a man would bog down to his hips in the disturbed silt after the lightest rain. The difficulty was greater for heavy equipment.

The surface (at el. 70) had to be excavated 35 ft for a foundation working level.

• The answer—Wellpoints seemed to be the answer, and the American Dewatering Corp. of New York City was called in as a subcontractor.

Silt is likely to be a marginal material for wellpoints—it has low permeability and it clogs the screens, unless some filter material is provided.

But the company's specialists solved this problem with the Moretrench Vacuum System and by putting in plenty of points and by packing the wellpoint holes with sand. They solved another—the fact that a great deal of air, percentage-wise, was being pumped along with the water—by hooking unusually large vacuum-pump capacity up with small water-pump capacity.

The result was a two-level installation of wellpoints partially enclosing the site (the plot is on a side-hill where two sides of the excavation have relatively high banks).

The upper set (at el. 63) consists of 154 25-ft-long wellpoints, connected to an 810 ft header; the lower set (at el. 51) consists of a 1,355 ft header and 243 30-ft-long wellpoints.

The wellpoints were inserted like this: A 12 in. "caisson" was jetted down to required depth, removed and the wellpoint jetted into place and well sanded.

A 2 in. centrifugal pump, with four 65-cfm capacity vacuum pumps attached, provides the suction for the system.

The result is a phenomenally low draw of water—as little as 7 gpm for the entire system—for the amount of pipe and points installed. But the low draw has proved enough to keep the silt's water content low enough for stability while foundation work proceeded. In general, banks stood at 1:1 although some shoring was necessary. Dryness of the working area was satisfactory. One observer, at the site 24 hours after a hard rain, saw piledriver rigs and other equipment working without difficulty. A help to dryness was a 1-ft blanket of sand all over the bottom.

• Credits—General contractor who is now completing steel erection is Robert Glenn Builders, Inc. of Hartford and New York; American Dewatering was represented at the site by R. T. Stumpf. Site investigations and tests were directed by Seelye, Stevenson and Value, consulting engineers of New York, and architect was O'Connor and Kilham, of New York City.

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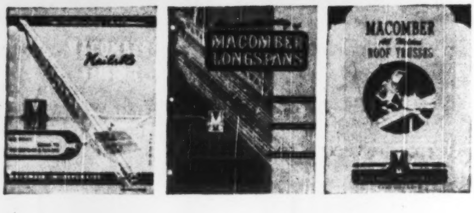
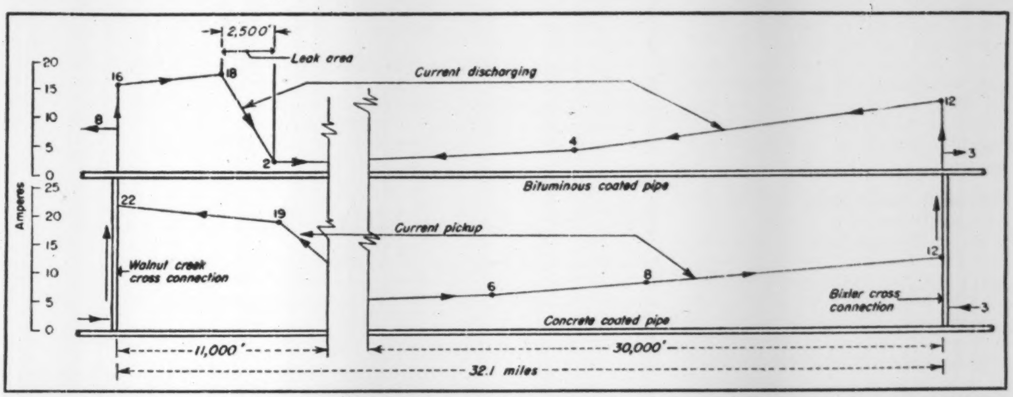




LEAKAGE occurred in a 2,500-ft length of the bituminous-coated line. Chart shows pickup and discharge of galvanic currents near cross connections. Current varies from a peak at or near the cross connections to no measurable current in the area halfway between.

Electrolysis in connected aqueducts

David Hendrickson
Senior Electrical Engineer
East Bay Municipal Utility District
Oakland, Calif.

Parallel operation of bituminous-coated and concrete-coated steel pipelines can generate large galvanic currents in soils of low resistivity. This was demonstrated recently when serious water leakage in the 25-year-old Mokelumne aqueduct began shortly after construction of a parallel line. Electrolytic action has been stopped by placing insulated joints in cross connections between the lines. This broke the electric circuit that had developed.

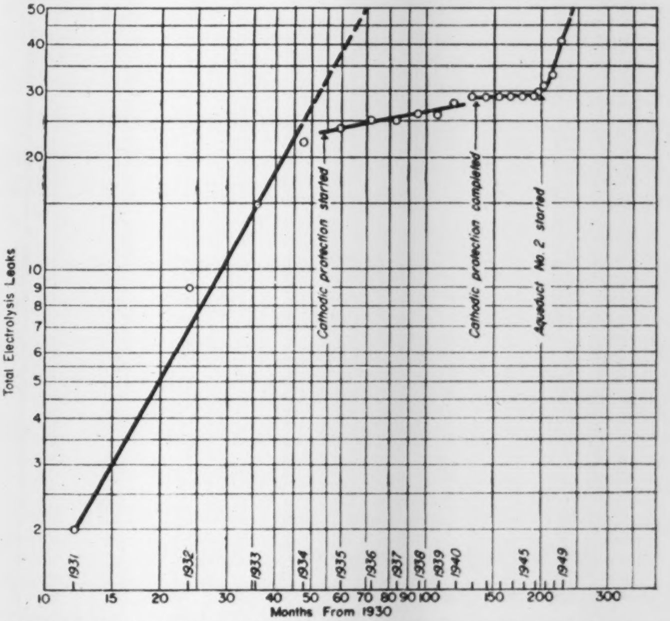
On investigation, it was later determined that similar currents were developed under almost identical circumstances on San Francisco's Hetch Hetchy aqueduct.

The Mokelumne aqueduct serves Oakland, Calif., and other cities and unincorporated areas on the east shore of San Francisco Bay. The original unit was a 65-in. dia riveted steel pipeline. In 1947 the first portions of a 67-in. parallel line were installed (ENR Jan. 8, 1948, p. 96). Most of this new line was welded steel with spun mortar lining and concrete coating.

Cross connections were built between the lines at strategic points as soon as portions of the new line were completed. This increased capacity of the aqueduct system at the earliest date and provided for flexibility of operation.

The destructive galvanic currents were first discovered on the Mokelumne aqueduct near the Walnut Creek pumping plant. Leaks developed about 6,000 ft east of the cross connection between the new and old line. Investigation showed that 16 amp was discharging from the bituminous-coated pipe over a distance of 2,500 ft. This current was discharging through cracks caused by soil stresses in the bituminous coating. The soil was heavy adobe with a resistivity as low as 200 ohm/cm.

A partial explanation of the phenomena is that the concrete-coated pipe tending toward the alkali side formed a negative pole or cathode. This picked up current from the low resistance soil over quite a stretch of



AN INCREASE in electrolysis leaks as shown on this chart occurred shortly after completion of first portions of the new line. This led to a thorough investigation.

line. The current increased as a cross connection was approached. On the other side, the old bituminous-coated pipe being more acid in nature formed an anode or positive pole. The current was discharged from this pipeline back into the ground over a long stretch.

• Current disintegrates steel–It has been determined that the discharge of 1 amp will disintegrate 20 lb of steel in a year. This loss may not appear to be of any great hazard when 875 tons of steel a mile is involved. However, 16 amp can disintegrate 320 lb of steel a year. Thus, when such a current is confined to discharge through cracks of a bituminous-wrapped pipe over a relatively short distance it can and did become a hazard.

Leaks usually occur through holes of less than 1 sq in., and 16 amp can disintegrate 255.8 sq in. of half-inch pipe in a year. So it can be seen that this current can cause a great many leaks.

The leakage was discovered by the presence of water on the surface above the pipeline. Exact location was determined by excavating the line. Since the line could not be taken out of service, repairs were made by welding plates on the outside of the pipe.

As far as could be determined, no previous trouble had been reported in interconnecting a concrete-coated pipe with a bituminous-coated steel pipe. However, as the Hetch Hetchy aqueduct serving San Francisco was being paralleled in an almost identical manner, tests were made between the two Hetch Hetchy aqueducts to determine whether similar action was taking place there. They revealed the generation of similar galvanic current, but of lesser magnitude. That was because soil resistivity along the Hetch Hetchy aqueduct is considerably higher than on the Mokelumne aqueduct.

• Concrete doesn't insulate pipe–Some engineers hold an erroneous opinion that a concrete-coated pipe is insulated from the soil. The concrete coating merely prevents direct contact between the pipe and the soil. This tends to diffuse any galvanic currents that may be generated. It is known that concrete-coated pipe will pick up stray electric currents and long line currents as though the pipe were bare.

The original Mokelumne aqueduct has been under cathodic protection for 16 years. The initial stations were installed in areas of the most corrosive soils. Additional stations were added in adjacent areas until full production had been provided. No new leaks had occurred for almost five years when the recent upswing was noted, as shown in the accompanying chart. This led district officials to a thorough investigation.

The conclusion was reached that electrolysis problems should be considered in the design of underground structures. This is particularly so when concrete-coated steel pipe is interconnected with pipes of dissimilar coatings buried in soils of low resistivity. When millions of dollars are invested in aqueducts, a small investment in electrolysis investigation could add many decades to the useful life of the investment.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Guaranty of work

A contractor, in a letter to the owner of an apartment house, agreed to do a roofing job for a fixed price. He also proposed, in the letter, the kind of roofing material to be used and the way the work was to be done, and agreed, upon the completion of the work, to give the owner a ten-year maintenance guarantee. The owner accepted the proposal and the work was performed.

Upon completion of the work, the contractor delivered to the owner a policy guaranteeing to repair any leaks that might develop in the work for a period of ten years. The policy expressly limited the guarantee to repairing any leaks that might develop in the roof and provided for a "waiver of any claim based on damage to, or defect in, roofing caused by warped sheathing boards, cracking or displacement of concrete, gypsum, insulation or other roof base; damage to building or contents therein, flashings, acts of Providence, or any damage or defects other than those specifically referred to."

Sometime after the roof was completed, leaks developed, causing damage to contents of the house. The owner claimed that the leaks developed as a result of the use of faulty material and defective workmanship, and brought an action, under the original contract, and not upon the maintenance guarantee, and sought in the action to recover not alone for the cost of repairing the leaks in the roof, but also for damage to the contents of the house resulting from the leakage.

Upon the trial of the action, the contractor claimed that the maintenance guarantee superseded the original contract, and that the maintenance policy limited his liability to the cost of repairing the leaks and that there was no liability thereunder for the incidental damage to personal property resulting from such leakage.

In spite of the fact that the jury found as a fact that the leakage resulted from defective workmanship, the trial court refused to allow the owner any judgment for damage to personal property. This determination, however, was reversed on appeal, the appellate court in its opinion stating: "While the contract makes no express warranty or guaranty that the roof would not leak, or that the contracting parties would not be liable for damages as a result of unworkmanlike manner in the construction of the roof, or resulting from the materials used; yet such contract having proposed the materials, plans and specifications, and that the work would be done by experienced mechanics, with maintenance guaranty for 10 years, the contract necessarily implied liability for the failure of the roof construction resulting in leaks and damage. The evidence is not controverted that the roof leaked and that the plaintiff [owner] suffered the damage as found by the jury; hence the defendants [contractors] impliedly warranted the roof to do that which would reasonably be expected of a roof—that it would not leak or cause damage."[1]

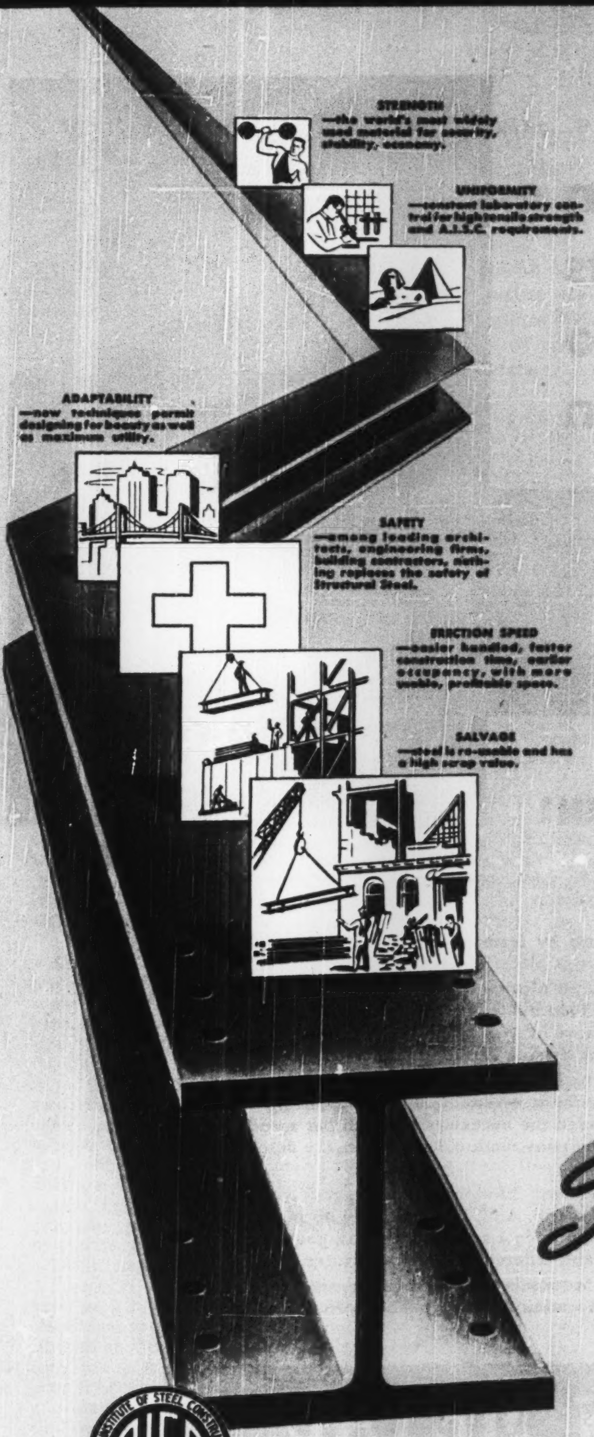
The court quoting from the decision in another case[2] stated: "One under a contract to do work under particular plans and specifications, ***is bound to execute it in a good and workmanlike manner; and, if from the result of bad workmanship the work is utterly defective, or not in compliance with the plans and specifications, he is entitled to nothing, but is liable for any damage his lack of skill and faithfulness may have caused."

(1) Rowson v Fuller, 230 S.W. 2d 355, Court of Civil Appeals of Texas, April 14, 1950.
(2) City of Huntsville v McKay, 286 S.W. 305.

Breach of contract

"Nonperformance of a valid contract is a breach thereof regardless of whether it occurs deliberately or through forgetfulness or neglect, unless the person charged shows some valid reason which may excuse the nonperformance; and the burden of doing so rests upon him."[1]

(1) Crouse v Vernon, 59 S.E. 2d 185, Supreme Court of North Carolina, May 3, 1950.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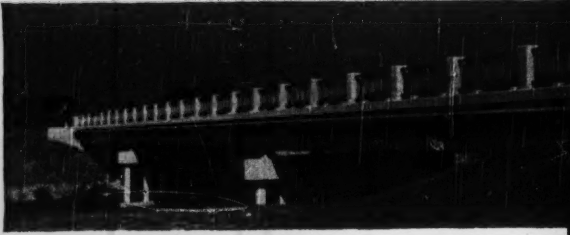

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COOL CONCRETE FOR DETROIT DAM—PART II

How low-temperature concrete is produced

EDITOR'S NOTE: Maximum temperature for concrete being placed at Detroit Dam is 50 F. The reasoning behind this restriction was explained in ENR (Dec. 21, p 39) by two design engineers in the Portland District, Corps of Engineers. This article tells how the contractor has set up aggregate and mixing plants to produce concrete at that low temperature.

THE CONSTRUCTION PLANT at Detroit Dam is designed to produce and place 250 cu yd of concrete an hour at a temperature of 50 deg F or less. Such a low temperature mix is obtained by precooled ingredients.

Sand and cement are cooled by screw-conveyor heat exchangers that are new in the construction field. Coarse aggregate is cooled by inundation—a method successfully used at Bull Shoals Dam and elsewhere.

Rough topography at the site made the construction plant layout difficult for the contractors (Consolidated Builders, Inc.). The narrow canyon of the river at the dam site made it hard to find space enough for the crushers, bins, refrigeration and cooling equipment, mixing equipment, and cableway system required. Accordingly, the contractor adopted a "balanced" system of aggregate production: Aggregate storage facilities are kept to a minimum and aggregate is produced almost as needed.

• Aggregates cooled—To meet the low placing temperature restriction, it was readily obvious that the coarse aggregates had to be cooled. This was recognized by the Corps of Engineers in its design work. No other method would have produced the required cool concrete. So, the specifications included restrictions as to the use of air or water cooling.

To obtain the degree of cooling required, it was mandatory that sand be cooled also. Cement cooling was not necessary, but it was recognized as helpful in getting a cool mix.

Cooled mixing water is also used. Although ice was added to the mixing water as a cooling medium on some recent dam work that method was not adopted at Detroit Dam, because ice could not do the job alone. So, in the interest of economy and simplification of operation, a 100% "cold water system" was adopted.

Under that system, coarse aggregate, introduced into the cooling process at the average summer temperature of 65 F, is cooled to 38 F with 35 F water. By use of the new heat exchanger system, sand at 70 F is cooled to 50 F. Cement, on the other hand may reach the cooling plant at temperatures as high as 150 F. It can only be cooled to about 60 F because 60 deg is the average "dew point" temperature for the vicinity.

Cement is manufactured by a high-temperature process. It does not lose much temperature while being shipped in bulk because its granular nature has an insulating effect. The 150 deg F is a maximum set in the specifications of the Corps of Engineers. Normally, the cement will probably be received at a lower temperature, more than likely at 120 F.

Temperature of pea stone—¾-in. to No. 4 screen—as it reaches the plant is assumed at 70 F. That's because its granular nature also insulates it and keeps it from giving off all the heat generated by the crushing process used in its production.

• Inundation cools aggregate — The coarse aggregate is cooled by immersing it in cold water. This system has been used extensively on other jobs, particularly at Bull Shoals Dam. However, since it is such an important part of the Detroit Dam plant, it will be reviewed in some detail in the following:

A 36-in. conveyor belt brings graded coarse aggregate from the storage bins to the cooling plant. Here it is dumped into the appropriate cooling tank that is already about one-third full of water. Five 120-ton cooling tanks are provided, one for each of four sizes of aggregate (6-in. to 3-in.; 3½-in. to 1½-in.; 1½-in. to ¾-in.; and ¾-in. to No. 4 screen) and one for use as a spare.

As the stone is introduced into the tank more water is added. When the tank is full of aggregate and water, additional cool water is circulated through the tank for a predetermined time. Then the water is withdrawn and the aggregate allowed to drain until it is loaded on the conveyor to the mixing plant.

• Electronic controls—At Detroit, the cooling sequence has electronic controls for automatic operation. The cooling time is determined by the length of time necessary to reduce the temperature in the slowest cooled aggregate—in this case the largest size (6 in. to 3 in.). Due to this requirement, the smaller stone is actually cooled for a longer period than necessary.

Aggregate is left in the cooling tanks until drawn by the mixing plant operator. Storage bins in the mixing plant can hold about 100 cu yd of each size aggregate. But the mixing plant operator may not want to completely fill his bins since aggregate held too long will gain too much heat. Cooled aggregate picks up about one degree of temperature an hour when the surrounding temperature is 90 F, experience has shown.

Then, when the cooling plant operator sees that one or more of his bins is empty or near empty, he starts the cooling sequence over again. In this case, there may be some aggregate left in one or more of the cooling tanks.

For full 250-cu-yd-per-hour concrete production, the cooling plant will be in almost continuous operation.

Specifications for the job originally prohibited cooling pea-size stone by inundation. That was because the fine nature of this material would cause it to retain too much of the cooling water. Sand cannot be cooled by inundation for the same reason.

A pair of shaking screens removes some of the excess moisture. However, since ice is not used in the mix, the excess moisture on the pea stone is not critical. Besides that, inundation of the ⅜-in. to No. 4 screen size as well as the larger sizes provides a more constant moisture content. This makes for easier compensation for the moisture at the mixer.

• Heat exchanger cools fine material —The jacketed conveyor heat exchangers for cooling sand and cement appears to be the core of the first successful system for cooling these materials. Temperature of the fine grained material is reduced by direct contact with the surfaces of the screw conveyor. Water at 35 F is circulated through the hollow screws as well as outside the jackets.

For sand cooling, the contractor has installed two heat exchangers involving four sections of four screws each. That is, the sand passes down four screw conveyors in its cooling process.

Cement, on the other hand, passes through only three conveyors and there is only one cooler because the cement is only reduced to 60 F whereas sand is taken down to 50 F.

Although the heat exchangers used at Detroit are new in construction, similar units have been extensively used in industrial installations for both heating and cooling granular materials. The Detroit units were designed and manufactured by J. D. Christian Engineers Co., San Francisco.

Cement is conveyed to the batching plant from the cooler by a pneumatic system. Separate conveyor belts take coarse aggregate and sand from the cooling plant to the batch plant.

• **Large refrigeration plant**—The refrigerating plant at Detroit is said to be the largest ever built in the Pacific Northwest, having a rated capacity of 700 tons of ice per day. The plant includes conventional ammonia compressors, shell and tube condensers, and shell and tube evaporators. The cool ammonia is piped to the cooling plant in a line encased in sawdust for insulation.

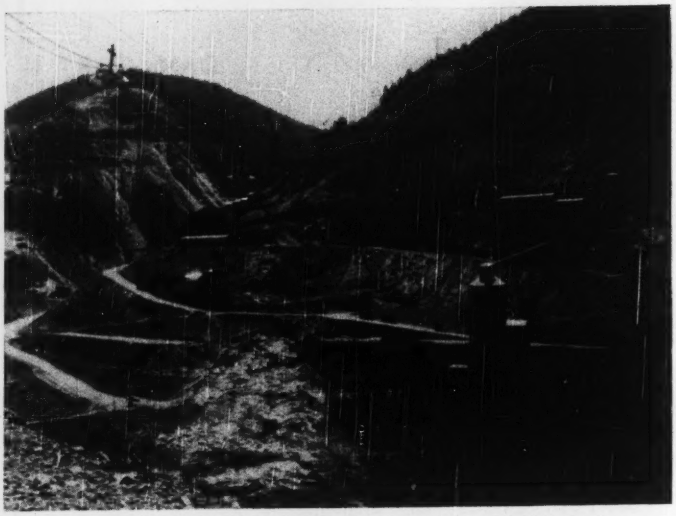
At the cooling plant, the ammonia is used to chill water used in the mixing and in the cooling process to 34 F. Two separate coolers, one for cooling-plant water and one for mixing water, are provided.

• **Tight canyon**—The narrow canyon and the location of the aggregate source complicated the layout of the construction plant.

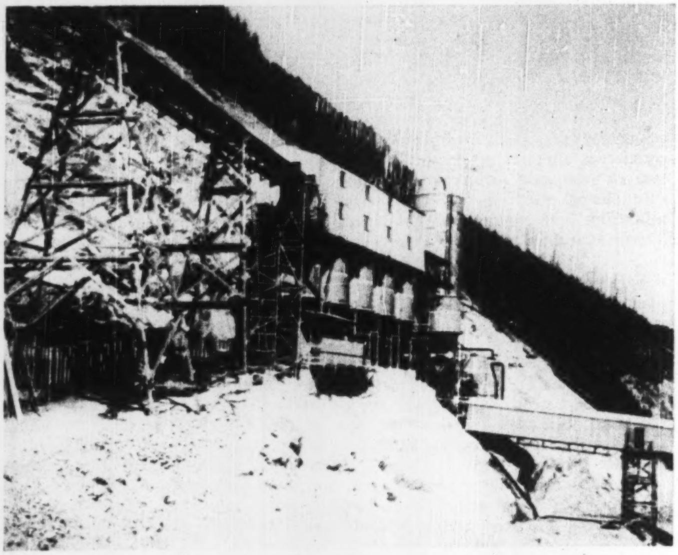
There is no natural source of aggregate available close to Detroit Dam. Natural stream bed material exhibited an alkali-aggregate reaction due to considerable quantities of volcanic glass. Accordingly, the aggregate source being used is a diorite outcrop located on the left bank about a half mile airline from the axis of the dam. This outcrop is about 500 ft higher than the dam crest.

Processing the diorite involves quarrying, two-stage crushing, screening, storing, cooling, and rescreening just ahead of mixing. To provide room for all these functions, shelves were dug into the rocky side of the canyon with the waste dumped so as to provide additional room. The expense involved in providing space for large aggregate stockpiles was considered prohibitive.

Accordingly, the only storage for graded aggregate is that provided by nine 2,500-ton bins. Four of these served the four stone sizes, and one was for ⅜-in. down to sand. Material withdrawn from this latter bin is processed in the sand manufacturing part of the plant with the end product stored in the four remaining bins.



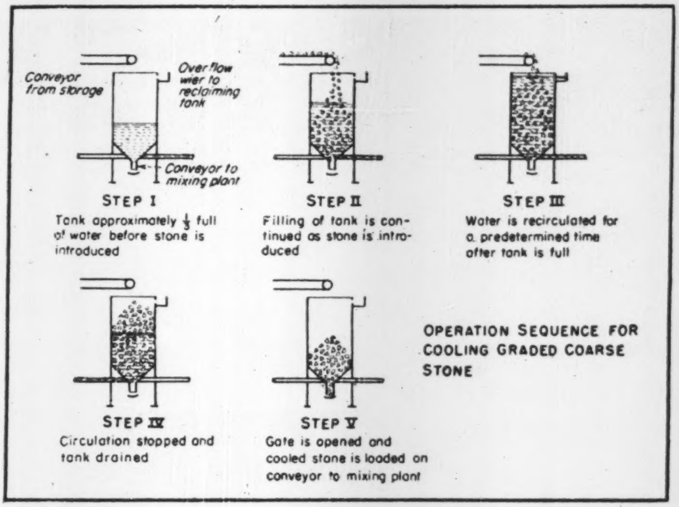
AGGREGATE FOR DETROIT DAM CONCRETE is quarried high on the canyon side (upper left). Under 24-hour operation, aggregate will take less than three days to finish its trip from the quarry into the dam in one of the 8-cu yd buckets. Cooling plant is located just above the mixing plant (right).



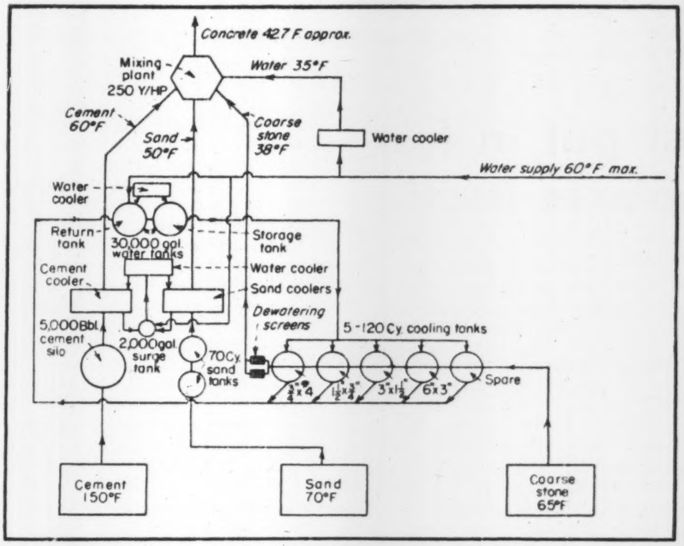
AGGREGATE ENTERS THE COOLING PLANT by conveyor at the top and the cooled materials go to the mixing plant through the covered bridge at the bottom (right). Five inundation tanks are provided. Large structure at the end of the line of tanks is a cement storage silo.

Four sand bins are necessary since the sand must be drained for at least 72 hours before use.

This setup provides only enough coarse aggregate storage for one day's continuous concrete placing operation. Screening facilities must operate full time when the job is on a 24-hr. basis.


Conveyor from storage
Over flow wier to reclaiming tank
Conveyor to mixing plant
STEP I
Tank approximately 1/3 full of water before stone is introduced
STEP II
Filling of tank is continued as stone is introduced
STEP III
Water is recirculated for a predetermined time after tank is full
STEP IV
Circulation stopped and tank drained
STEP V
Gate is opened and cooled stone is loaded on conveyor to mixing plant
OPERATION SEQUENCE FOR COOLING GRADED COARSE STONE

INUNDATION TANKS for the coarse aggregates are the most important parts of the cooling plant process. Diagram shows how these tanks (see photo on preceding page and also diagram below) work. Cool aggregates are the principal reason for cool concrete mix at Detroit Dam.


Concrete 42.7 F approx.
Mixing plant 250 Y/HP
Water 35°F
Cement 60°F
Sand 50°F
Coarse stone 38°F
Water cooler
Water supply 60° F max.
Water cooler
Return tank
30,000 gal. water tanks
Storage tank
Water cooler
Cement cooler
Sand coolers
Dewatering screens
5,000 Bbl. cement silo
2,000 gal. surge tank
70 Cy. sand tanks
5-120 Cy. cooling tanks
3/4"x4
1½"x3/4"
3"x1½"
6"x3"
Spare
Cement 150°F
Sand 70°F
Coarse stone 65°F

SCHEMATIC DIAGRAM OF COOLING PLANT at Detroit Dam showing where the various materials are cooled. Compressed ammonia from a 700-ton refrigeration plant is used in the water coolers and the cold water does the rest of the job either by direct or indirect contact. Sand and cement coolers are screw-conveyor heat exchangers.

Some leeway is available in the 30,000 tons live storage of crushed but unscreened material. On round-the-clock operations, this amount will last about one week. Should any of the crushing or quarry equipment break down, that much time is available for repair operations.

• **Two cableways**—The cableway setup was also affected by the tight space limitations. There are two duplicate units involving movable head-towers and movable tail-towers on parallel tracks. The tail-tower operation is remote controlled from the head-tower and the two move simultaneously in the same direction when required by operating conditions.

This was the only setup that could be built into the limited space available. Had a stationary tail-tower arrangement been used, space would not have been available for the length of head-tower track needed. Some consideration was given to constructing the head- and tail-tower tracks along the arcs of concentric circles but this was discarded since there was found to be inadequate space for the head-tower track.

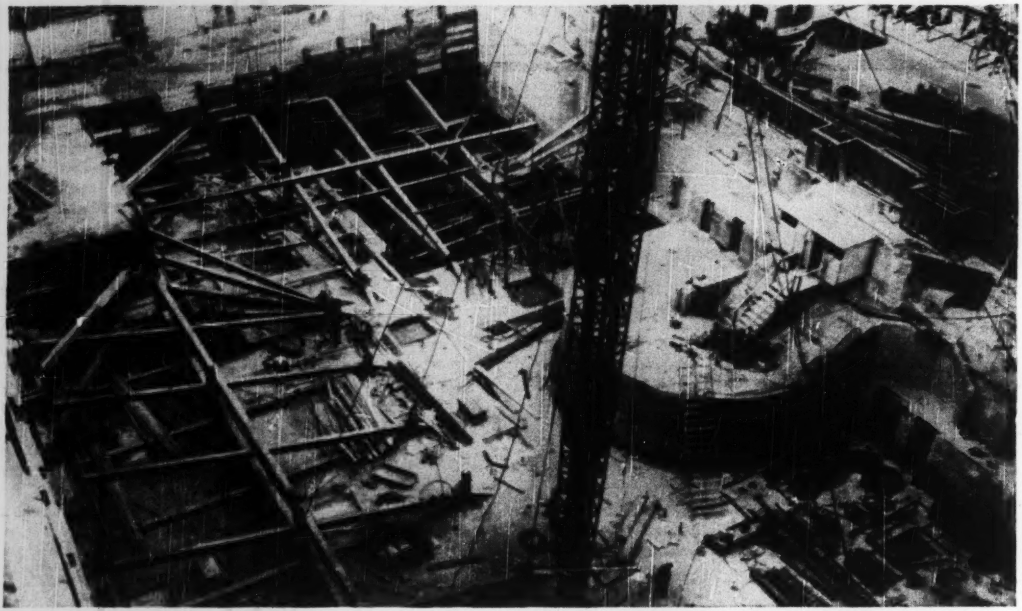
The cableways have to handle concrete buckets of 8-cu yd capacity. Maximum horizontal speed is 1,800 fpm. Top vertical speeds are 300 fpm lowering and 600 fpm hoisting.

Almost all of the equipment on the job is electrically powered. A special substation of the Bonneville Power Administration was built nearby to furnish power for the contractor. The total connected load is 7,560 hp. Largest units are the electric shovel in the quarry at 275 hp, the jaw crusher at 300 hp, the rod mill at 350 hp, and cableway motors at 600 hp each.

• **Time schedule** – Placing one and one-half million yards of concrete must be completed by July 10, 1953. The contractor is shooting for completion by Jan. 1, 1953, or earlier. To do that will require three-shift operation for 10 months of the year. Only January and February are expected to be too cold for efficient operation. Only about 10% of the concrete will be in place by the end of 1950 due to the narrowness of the canyon in which the first work must be done. Also it will take a considerable time to work up to where full schedule operations are practical.

Detroit Dam is a project of the Portland District, Corps of Engineers, Col. D. S. Burns, district engineer. C. C. Davis is resident engineer, S. R. Overholser is assistant resident engineer, and C. W. Beck is chief of operations.

Building the main structure under a $28,230,509 contract are Consolidated Builders, Inc. This is a corporation formed by Kaiser Engineers, Inc., General Construction Co., Walsh Construction Co., Bates and Rogers Construction Co., The Shea Co., Pacific Bridge Co., and Utah Construction Co. The Kaiser people are, in effect, lead contractors. Russ Hoffman is general superintendent and H. H. Roberts is chief engineer. Glenn Miller, mechanical engineer of Covina, Calif., was retained for the initial phases of study and design of the cooling plant. Also involved in the design of the plant were the general superintendent and George Havas, chief engineer for Kaiser Engineers, Inc.



SECOND SECTION of new foundation nearing completion. Shoring system at left holds soldier beams which, in turn, carry needle beams supporting wall of existing structure. At far end of hole, one bay is left unexcavated to avoid underpinning structure later to be demolished. Semi-circular structure (right) is subway entrance.

Continuous mat put in fast as big store replaces itself

Charles B. Spencer
President
Spencer, White and Prentis, Inc.
New York, N. Y.

JORDAN MARSH department store in Boston is being completely rebuilt—but only a section at a time so that loss of business during construction will be minimized.

One of Boston's oldest and most successful establishments, the store occupies one full block. Facilities had become inadequate, but it was felt that retention of the site was of vital importance. It was decided therefore to divide the property into five sections and redevelop them one at a time—demolishing, excavating, pouring the foundations, and rebuilding superstructure.

Section I was rebuilt starting in August, 1948; section II, a 200x94-ft portion of the property, is now nearly finished.

Borings disclosed the presence of groundwater and a subsoil of such poor quality that a continuous mat foundation was the only practical solution. A sequence of pours was laid out (see drawing) and, as each section is excavated, the reinforced concrete mat is poured immediately.

• Careful bracing—Excavation for section I required careful bracing—use of the grid sheet system of bank protection (driven soldier beams with horizontal timber lagging behind their inside flanges, all supported by cross-lot steel braces). This open sheeting prevented build-up of a water head in the bank. The bracing system was prestressed by hydraulic jacks as a guarantee against any movement of the retained soil. This was of particular importance on one side of the building where the soldier beams served the additional purpose of providing support for floors of the existing store.

The ground was so soft that a clamshell bucket digging an exploration hole for Section I sank in the muck, requiring two cranes for its recovery. Drainage of the soft ground (yellow sand-clay mixture underlaid by a stratum of soft blue clay) was accomplished by putting in a gravel and clay-pipe drain system before pouring the foundation mat. Tile drains in a 10in. thick layer of gravel led to a sump from which water was pumped during pouring of the mat in section I.

Pumping was continued even after completion of the mat; it was believed that the drainage system and continuous pumping would have a beneficial effect on soil under Section II.

It did. When two years later excavation for Section II started, it was found that pumping in section I had so improved this material that it was handled very readily except in a deep trench adjoining the earlier work. Soil problems for Section II were also lessened where the clay stratum was found much nearer to the surface than borings had indicated.

• Section II—Section II is surrounded by the existing store on three sides, the fourth side being in contact with the subway on Summer St. The south and east sides of the excavation required no protection, being respectively the north side of Section I. and the west wall of the subway—both of which extended to below subgrade.

Along the excavation's west side, the method of maintaining the existing store was substantially the same as that used in Section I. Before demolition, a steel shoring system was placed, designed to pick up all loadings in the existing store. The new temporary columns of this system were carried on steel needle beams resting on the basement floor and projecting into the area of Section II.

Along the west line of the new section, soldier beams were driven at an average spacing of 6 ft, and served the dual purpose of supporting horizontal lagging and providing vertical support for the steel needle beams.

Maintenance of the existing basement floor on the ground was entirely dependent upon the lagging. Each sheet of this lagging was set with extreme care to prevent loss of ground, and the bracing system was carefully designed and installed to eliminate any lateral movement.

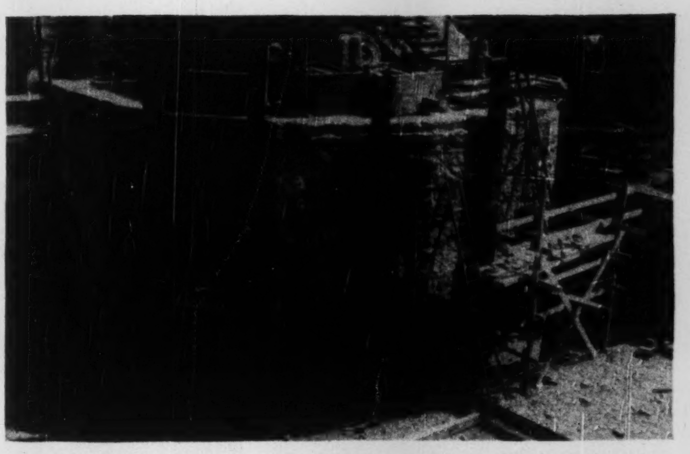
Along the north side of the hole, presence of a five-story building would have required underpinning if the deep excavation had been carried to the north line. To avoid the loss of time and expense required to underpin a wall—which would later be removed—it was decided to leave the north bay unexcavated.

• Excavation plan—The plan adopted called for excavation nearly 30 ft below the building's foundation, but 16 ft away. Alongside the five-story building, a line of beams was installed on about 3 ft spacing. These beams will support the north bay of section II until the next section to the north is completed. About 16 ft to the south another line of beams at 6 ft spacing supported horizontal lagging which maintained the unexcavated portion.

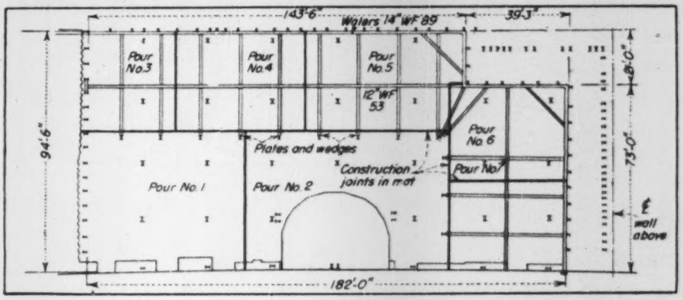
Extreme care in the installation of the lagging and the bracing system permitted pouring of the mat without settlement or lateral movement in the building.

Excavation was carried on by power shovel, by clamshell buckets and by hand. Power excavation was carried to El +2, or 30 ft below the street, leaving from 10 to 13 ft to be done with clamshell buckets and manually. Trucks entered the premises at the north end and were ramped down into the cut on about a 15% grade.

The sequence of concrete pours is shown in the drawing. As pours 1 and 2 were completed, the pilot beams along the west side were braced against the finished concrete, permitting the subsequent placing of pours 3, 4 and 5. As excavation progressed in the areas of pours 3, 4, 5, 6 and 7, the horizontal lagging followed it down. Great care was used in placing this lagging since any loss of ground would have caused settlement in the adjoining basement.



SUBWAY ENTRANCE had to be supported on posts placed underneath, and on brackets of others driven around it, until the mat could be poured.



SEQUENCE OF POURS—In section II the new mat was poured in these seven stages. At extreme right, the tight row of H-piles will carry north bay of this section until section to north is rebuilt. Steel beams were used throughout for bracing.

Steel beams were used throughout for bracing. Steel is preferred for important bracing as having less initial compression, fire hazard, being more susceptible to design computation and affording a greater factor of safety against damage due to contact with the excavating buckets.

A feature of section II not to be found in any of the others was the necessity of constructing foundations under a subway entrance which extended into the property as a semicircle with a 30-ft radius. An easement had been acquired for this staircase when the subway was built, and its maintenance during the construction was a part of the contract.

This interference occurred in the pour 2 area, and the method used had to provide for the continuity of the concrete in this pour. The perimeter of the staircase was supported on beams driven alongside, brackets welded to the beams serving to pick up the load. As the excavation progressed beneath the structure, steel posts carried below subgrade supported the weight of the floor. The concreting of the mat below the staircase was accomplished by pouring through holes cut in the floor, actual contact with the underside of the floor being obtained by grouting. The comparatively small size of vertical members used for shoring did not interfere with placing of reinforcing steel nor continuity of the concrete.

Foundation work on both sections (I and II) was completed in advance of the estimates, and it is believed that Jordan Marsh will move into its second section by July, 1951. The schedule calls for successive sections to be started every two years, the entire development being completed in 1957. It is also possible that with the foundation material improving to the north, special methods may permit construction of a whole section in a single year.

Perry, Shaw and Hepburn were the architects and Maurice A. Reidy, the structural engineer. Thompson Starrett, Inc., is general contractor and Spencer, White & Prentis, Inc., the foundation contractor.

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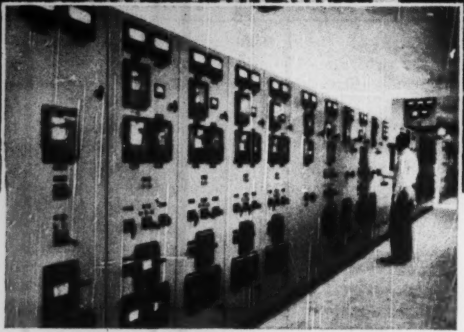

(*Above*) **Localized Control Points** are provided in addition to centralized control wherever desirable.

High-Voltage Switchgear is centralized in this easy-to-operate, easy-to-maintain switchboard. Metal-clad cubicles house protective and control equipment for generators, transformers, and main pump motors. Construction is safe, dead-front type.

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Big new sewage plant has
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Here's news for builders and operators of public works. New York City's new 26th Ward sewage plant treats 60 million gallons per day; can handle a storm flow of 120 mgd. One of the world's biggest, this plant is the last word in modern, efficient installations. Westinghouse power distribution and control equipment does away with time and labor wasting chores, cuts electrical maintenance to the bone.

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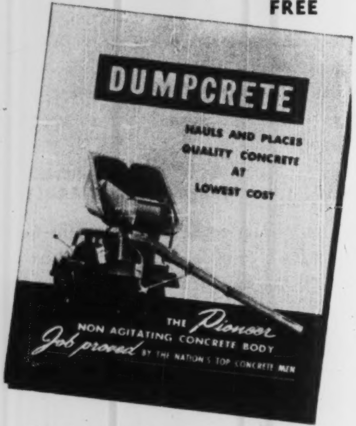
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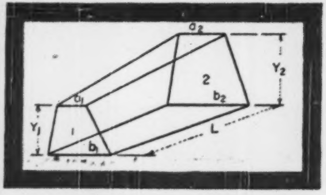


New formula speeds computation of volumes

To enable the rapid and exact calculation of the volume of a wingwall, the following formula, which has been named the Long Island Railroad formula, has been developed:

$$V = LP/24$$

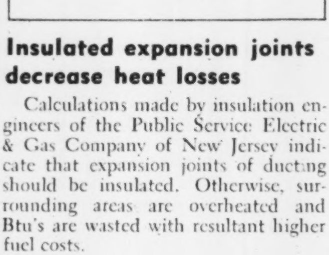
In this formula, V is the volume in cu ft, L the distance between two parallel sections and $P = h_1v_1 + h_2v_2 + h_tv_t$, where $h_1 = a_1 + b_1$ (see sketch), $v_1 = 2Y_1$, $h_2 = a_2 + b_2$, $v_2 = 2Y_2$, $h_t = h_1 + h_2$ and $v_t = v_1 + v_2$.

As an example, assume $a_1 = 1$, $b_1 = 3$, $Y_1 = 2$, $a_2 = 2$, $b_2 = 10$, $Y_2 = 18$ and $L = 48$ ft. Then, $h_1 = 4$, $h_2 = 12$ and $h_t = 16$; $v_1 = 4$, $v_2 = 36$ and $v_t = 40$. $P = 4 \times 4 + 12 \times 36 + 16 \times 40 = 1{,}088$. Therefore,

$$V = 48 \times 1{,}088/24 = 2{,}176$$

This gives the same result as would be obtained with the prismoidal formula but requires only 13 steps, instead of 20. While the average end-area formula would involve only 9 steps, the result would be 24% in error—MARVIN GATES, *Field Engineer, Long Island Railroad, Rosedale.*

◆



Insulated expansion joints decrease heat losses

Calculations made by insulation engineers of the Public Service Electric & Gas Company of New Jersey indicate that expansion joints of ducting should be insulated. Otherwise, surrounding areas are overheated and Btu's are wasted with resultant higher fuel costs.

To prevent heat loss at these vulnerable points, Public Service has devised a simple technique—the construction of a light-gage metal box over the joint as illustrated. One edge of the box is not firmly secured, allowing it to bend in or out as the joint contracts or expands. The box is filled with loose mineral wool to prevent heat loss. Depth of box depends on temperature of the duct.

Public Service insulates its ducts both internally and externally, depending on duct service, and applies this expansion-joint covering in both cases. The box circumscribes the complete perimeter of the duct.—Suggested by: INDUSTRIAL MINERAL WOOL INSTITUTE, 441 LEXINGTON AVENUE, N. Y. C.

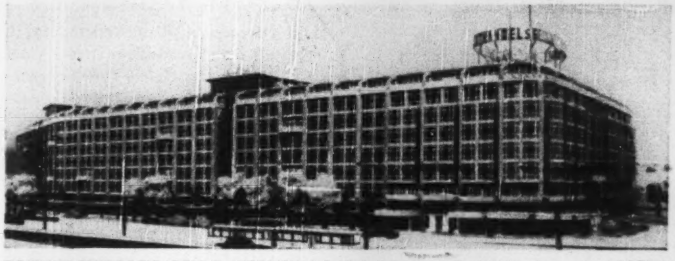
◆

Zinc painting is fast on broom-swept surface

Wire brushing of rusty galvanized roofing prior to application of zinc paint is now considered unnecessary and economically unsound as a result of field tests conducted by the American Zinc Institute. Because zinc is in tight supply, emphasis is being placed on taking care of zinc-coated steel sheets presently in use. Possibly the most effective way to add life to badly weathered galvanized roofing or siding is to apply a coating of metallic zinc paint. Hitherto, wire brushing has been considered necessary.

However, on a typical test conducted by the Institute an extremely rusty roof was divided into two sections. One was steel-brushed; the other brushed with a stiff-bristled broom. Both were given two sprayed coats of metallic zinc paint consisting of 80% zinc dust and 20% zinc oxide in linseed or soybean oil. Seven years later, the difference in condition of the two sections was almost indiscernable.

DEVELOPMENTS ABROAD



DUTCH WHOLESALERS' HOUSE—Scheduled for completion by the end of 1951 is the Wholesalers' House at Rotterdam, which will be one of the largest structures to be built in Europe. Construction was begun in 1947. The building will be 720 ft long, 260 ft wide, 7 stories high, and have a content of 16,000,000 cu ft. Designed to centralize wholesalers, the building, a model of which is shown, will be occupied by 150 wholesalers and will accommodate more than 5,000 people. A row of shops surrounds the ground floor. The basement will house a 400-car garage, cafes, and forwarding department. Basement, ground floor, and second floor can be reached by car. Goods are carried to and from the various floors above the first by elevators and on special pallets which fit exactly on the trucks by which they are further transported throughout the country.

World engineering groups coordinate activities

A conference of international engineering organizations was sponsored by the United Nations Engineering, Scientific and Cultural Organization and held at UNESCO House in Paris recently.

The delegations included four representatives from the United States: Col. Wayne S. Moore, Washington, D. C., of the Permanent International Association of Navigation Congresses; Prof. Lorenz G. Straub, Minneapolis, Minn., president of the International Association for Hydraulic Research; Prof. Donald W. Taylor, Cambridge, Mass., secretary of the International Society of Soil Mechanics and Foundation Engineering; and C. A. Atherton New York, secretary of the International Commission on Illumination.

Other international civil engineering organizations represented were the International Association of Bridge and Structural Engineering, the World Power Conference, the International Commission on Large Dams, the International Commission on Irrigation and Canals, the Permanent International Association of Road Congresses and the International Federation of Surveyors.

L. Cambronac of Paris, vice-president of the International Association of Bridge and Structural Engineering, was elected chairman. UNESCO was represented at the meetings by Prof. P. Auger, head of the Department of Natural Sciences and Jean A. Mussard of the same department. A draft constitution for a Union of International Engineering Organizations was studied.

The objectives of the union as expressed in the constitution are: (a) to co-ordinate, by common agreement, the activities of the member organizations, and in particular the programs and the dates of international congresses; (b) to take all useful steps for the moral and material support of the member organizations; (c) to receive proposals and to make recommendations thereon with a view to helping the formation of new international organizations in fields not effectively covered by existing organizations; (d) to further mutually helpful relations among the member organizations and with similar organizations and also relations among the member organizations, the UN and their specialized agencies.

Also in Paris was held a few weeks ago the first general assembly of the International Council for Building Documentation. Taking part were representatives of the UN the UNESCO, the International Labor Organizations, the International Union of Architects, the International Standards Federation, the International Union of Research Laboratories and other groups. The purpose of the organization is the exchange of documents and technical data among technicians in various countries.

Rio road congress, Jan. 6-21

The postponed national highways congress of Brazil (ENR, Oct. 12, page 59) will be held in Rio de Janeiro from January 6 to 21.

HOUSE CONSTRUCTION COSTS

1. How to determine unit costs of house construction — a simplified method applying to all designs and local price variations. Includes data on quantity of material and number of labor hours needed, and gives worked-out examples of typical unit costs. **By G. Underwood. 302 pages, 63 illus., $4.75**

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4. Condensed into this one book are all the tips, methods and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations — with the transportation and handling of heavy machinery — with the erection and demolition of smallest size structures. **By W. Rossnagel. 321 pages, over 300 illus., $4.75**

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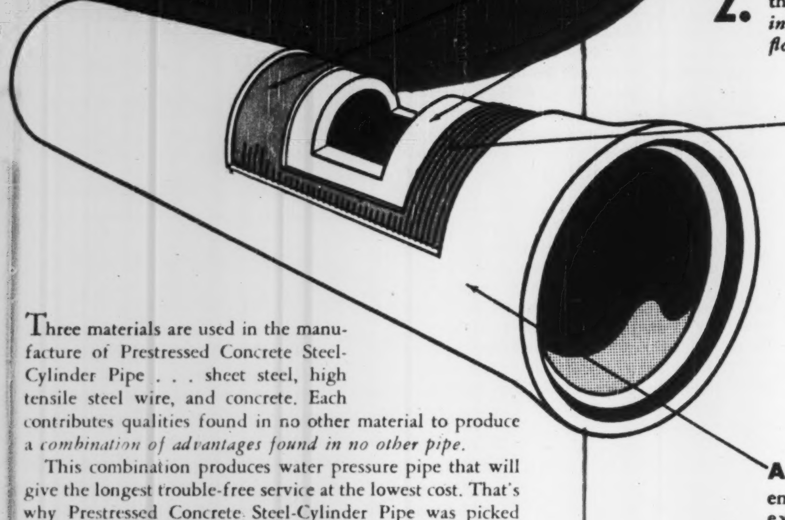

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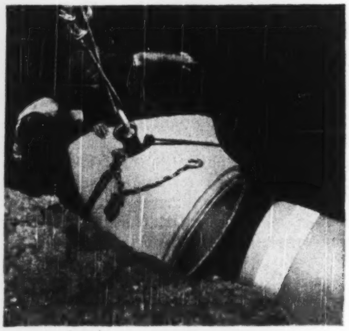

MUNICIPAL AFFAIRS

SPRINGFIELD, ILL., population 80,800, has two principal claims to fame—It is the capital of Illinois and the home town and final resting place of Abraham Lincoln. In the foreground of the above picture is the Illinois State Capitol, completed in 1887. Springfield has the commission form of city government with a mayor and four commissioners. The city owns and operates its water supply system and an electric generating and distribution system. The water comes from the large artificial Lake Springfield located in a valley southeast of the city. A steel and concrete dam impounds a lake 15 miles long with a shore line of 45 miles. Near the dam is a new water purification and pumping plant. The Springfield Sanitary District operates and maintains a sewage treatment plant and many miles of interceptor and trunk line sewers. The Capital Airport is about four miles northwest of the center of the city.

Plan vast developments at Philadelphia, Pa.

The Philadelphia City Planning Commission has transmitted to Mayor Bernard Samuel a recommended six-year program of public improvements to cost $426,961,500 to carry forward a construction program already well under way.

The report, covering the period 1951-1956, schedules hundreds of projects to meet the city's needs "within the amount of funds available." It reveals that from 1945 to 1950 the city placed under contract $237,000,000 of public improvements. The recommended program for the next six years almost doubles that, but a large part of the increase is represented by the $200,000,000 public housing program.

The plans include the Schuylkill expressway, completion of the Market Street subway extension, and the placing in operation of the Locust Street subway; waterworks improvements, completion of the sewage collection and treatment system, building of incinerators and construction of the Philadelphia International Airport terminal building. Also included is an accelerated program of redevelopment in blighted areas and improvements to the city's health and welfare institutions.

The commission says $64,170,800, or 12 percent of the amount, is available from loans already authorized. The balance would come from the following sources: $306,807,000 (58%) from state, federal and township sources; $89,788,700 (17%) from new loans within the general debt limit; $49,191,000 (9%) from loans for self-supporting projects; $17,723,000 (4%) from current income and special assessments.

• **Industrial development**—The commission also has recommended a major plan for the industrial development of northeast Philadelphia. It calls for the rezoning of various areas in the far northeast section to provide sites for two industrial districts in which there will be no residential construction. Those districts would have convenient vehicular, rail and airport facilities. The industrial building would be screened from adjoining residential areas by wide setbacks and attractive plantings of trees and shrubs.

The program calls for rezoning 833 acres from residential to industrial and 376 acres now industrial to become residential.

The industrial districts, it was indicated, will be developed by private enterprise groups which have already obtained tentative expressions of interest from the manufacturers desiring to locate in the area.

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PLANNED PROTECTION

CONTINENTAL STEEL CORPORATION

MEN AND JOBS

Col. Dabney O. Elliott, district engineer for the Corps of Engineers in Chicago from 1946 to 1949, has been named deputy director of civil defense for Illinois by Maj. Lenox R. Lohr, state director. He resigned as president of the federal beach erosion board for the Corps of Engineers, Washington, D. C. He will be succeeded on the board by **Col. Earl E. Gesler** of Chicago, formerly district engineer at Philadelphia.

C. E. Bischoff, Columbus, Ohio, has been named chief deputy engineer in Franklin County to succeed **Kenneth B. Anderson,** who resigned to become designing and construction engineer with a Detroit contractor.

Frank Nash, district engineer for the Alaska Road Commission at Fairbanks, is retiring after 26 years. He started as a surveyor, worked up as foreman, engineer, acting superintendent and superintendent before attaining his present position. During the early period he made many journeys by dog team, exploring the Yukon and Tanana River basins before they were opened up by roads.

Walter D. Tiedeman, civil engineer, will retire soon as chief of the milk and restaurant sanitation section, New York State Health Department, Albany, after 25 years of service. He will be resident lecturer in the School of Public Health at the University of Michigan and director of the newly-established testing laboratory of the National Sanitation Foundation. Mr. Tiedeman joined the State Department of Health in 1925 as assistant sanitarian. Graduated from Union College in 1914 as bachelor of engineering and master of civil engineering, Mr. Tiedeman was resident engineer with the Schenectady Water Department and was with the U. S. Public Health Service for two years.

Brig. Gen. Walter D. Luplow, district engineer at Los Angeles, Calif., has taken command of an engineer brigade at Camp Rucker, Ala. Lt. Col. Jackson Graham, formerly executive officer of the Los Angeles district, became acting district engineer. Prior to his assignment at Los Angeles, General Luplow was Assistant Chief of Engineers for Military Operations, Washington, D. C.

Watching the recent first pouring of concrete made in the foundation of Pine Flat Dam on California's Kings River are; left to right, Earl M. Jennette, in charge of construction for Pine Flat Contractors; J. I. Thomas, center, engineer in charge for the Army Engineers, and Charles L. Kaupke, Kings River watermaster. The cost of the dam is estimated at $50,000,000. It will have a maximum height of 440 ft. and length of 1,820 ft., with a crest width of 32 ft. The foundations require excavation of 540,000 cu. yd. of earth and rock, and about 2,300,000 yd. of concrete will be required for the structure, as well as 6,180,000 lb. of reinforcing steel and 336,000 lb. of structural steel.

EDUCATION AND RESEARCH

G. B. Earnest, named dean, Fenn College Eng. School

Prof. G. Brooks Earnest, engineering faculty member of the Case Institute of Technology, has been named dean of Fenn College Engineering School, Cleveland, Ohio.

Professor Earnest, who is scheduled to assume his new post Feb. 1 next, was graduated from Case in 1927. He has been connected with Case in various teaching capacities since 1930 and received his Master of Science degree in civil engineering there in 1933. He served as field engineer in the construction of Cleveland's Terminal Group and the Eagle Ave. Viaduct. In 1942 he was on the mayor's committee studying the city's planning problem.

New dean at Syracuse

Ralph A. Galbraith has been appointed dean of the L. C. Smith College of Applied Science at Syracuse University, succeeding Dean Louis Mitchell, who has held the post since 1922, and is retiring after 40 years on the Syracuse faculty. Dr. Galbraith holds degrees from Yale and Missouri, and he has taught at Missouri, Texas, and Georgia Tech. He has been at Syracuse for four years.

Appointed dean of the school of architecture and planning at M.I.T., is **Pietro Belluschi**, who holds the degree of Doctor of Architectural Engineering from the University of Rome, and is a prominent architect of Portland, Ore.

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A MOUTHFUL AT EVERY BITE

MEETINGS

Albert E. Bartlett, Syracuse contractor, was elected first president of the New York State Home Builders Association. Representatives of 10 home builder groups met to form the association. They elected Joseph Entress of Rochester vice-president, Leo P. Brynes of Albany, secretary, and Oscar Giescke, Buffalo, treasurer. Long Island, Westchester County, Albany, Schenectady, Syracuse, Rochester, Buffalo, Niagara Falls, Elmira and Binghamton areas were represented. The organization will provide means for home builders expression on legislation, codes, and regulations.

CALENDAR

Highway Research Board, National Research Council, annual meeting, Washington, D. C., Jan. 8-12.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 10-12.

N. Y. Section AWWA, luncheon meeting, Park-Sheraton Hotel, New York City, Jan. 16.

Louisiana Engineering Society, St. Charles Hotel, New Orleans, Jan. 18-20.

Industry—College Conference, Case Institute of Technology, Cleveland, Ohio, Jan. 20.

Canadian Construction Association, Chateau Frontenac, Quebec, Que., Jan. 21-24.

National Association of Home Builders, annual convention and exposition, Stevens and Congress Hotels, Chicago, Ill., Jan. 21-25.

Conference, Wisconsin County Highway Commissioners and County Highway Committee Members Association, Milwaukee, Wis., Jan. 23-25.

Third California Conference on Street and Highway Problems, University of California, Berkeley, Jan. 24-26.

Associated Equipment Distributors, annual meeting, Stevens Hotel, Chicago, Ill., Jan. 28-Feb. 1.

Association of Asphalt Paving Technologists, Cosmopolitan Hotel, Denver, Colo., Feb. 5-7.

N. J. Section, AWWA, luncheon meeting, Hotel Essex House, Newark, N. J., Feb. 14.

Midwinter Housing Conference, S. W. Research Institute's division of Housing and Construction Technology, Statler Hotel, Washington, D. C., Feb. 13-14.

Illinois Annual Conference on Highway Engineering, Urbana, Ill., Feb. 20-22.

American Concrete Institute, St. Francis Hotel, San Francisco, Calif., Feb. 20-24.

Industrial Waste Conference, Purdue University, La Fayette, Ind., Feb. 21-23

American Society of Civil Engineers, convention, Rice Hotel, Houston, Texas, Feb. 21-23.

Midwest conference, Building Officials and Inspectors, Purdue University, La Fayette, Ind., Feb. 26-28.

American Concrete Pipe Association, Waldorf-Astoria Hotel, New York City, March 1-3.

American Road Builders Association, Schroeder Hotel, Milwaukee, Wis., March 12-14.

American Railway Engineering Association, Chicago, Ill., March 13-15.

N. J. Sewage and Industrial Wastes Association, Haddon Hall Hotel, Atlantic City, N. J., March 14-16.

N. Y. State Association of Highway Engineers, Rochester, N. Y., March 28-30.

OBITUARY

Langley S. Homer, 60, Haverford, Pa., a civil engineer and general superintendent of the Turner Construction Co. in the Philadelphia territory, died Dec. 12 at Boston, Mass. He was a graduate of Rensselaer Polytechnic Institute, 1913. He served as a captain with the Army Engineers in France during World War I.

Frank W. Clark, 72, construction engineer, Rochester, N. Y., died Dec. 4. He was with the F. L. Heughes Co. Inc., for the last 27 years and worked on many of their large construction projects.

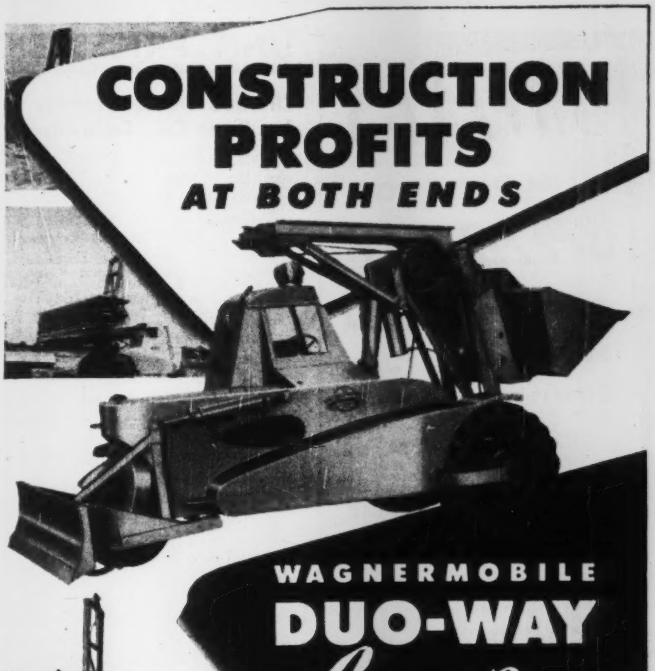
Frank Henderson, 78, formerly for 28 years chief engineer of the Brookline, Mass., Water Works, died on Dec. 7 at Zephyr Hills, Fla. He had served as chief engineer of the Hyde Park, Mass., Water Co. until it was taken over by the city of Boston.

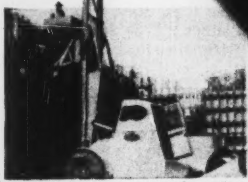
Arthur Veritch White, 79, consulting engineer, died at Toronto, Ont., on Dec. 7. He was with the Ontario Hydro Electric Power Commission, Department of Public Works at Ottawa, an engineer on the International Joint Commission for the Lake of the Woods Investigation, and a prolific writer on water power problems in Canada and along the international border.

Robert F. Egelhoff, 64, active in the construction industry in the Buffalo, N. Y., area for many years, died recently in Florida. He had been with the Turner Construction Co. of New York City for more than 40 years and supervised many large construction projects in Buffalo. He was graduated from the University of Wisconsin engineering school and was later appointed to the Buffalo division of the Turner Construction Co. In 1937 he was transferred to the company's Boston division.

Herbert Rivers, 62, secretary-treasurer of the AFL Building and Construction Department, died at Washington, D. C., Dec. 6. In 1921 he was Commissioner of Labor in Missouri and in the second world war he was a member of the Wage Adjustment Board set up to handle disputes in the construction industry.

Daniel R. Connell, 54, an engineer for 21 years with the Cook County, Ill., Highway Commission, died Dec. 9 in Chicago. He was graduated in 1925 from the school of engineering at the University of Notre Dame.

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UNIT PRICES BID BY CONTRACTORS

Divided Dover By-Pass for Kent Co., Delaware

Bids on cement concrete pavement for the Dover By-Pass, Delaware, ranged from $16.50 to $17.10 per cubic yard, with the successful bidder taking the job at $16.60 for this item.

The Delaware State Highway Department took bids Nov. 1, 1950, from four firms on Contract 913. The low bid, $1,198,170, was only 0.4% below the next lowest bid and 10% below the high.

The work is in Kent County about a mile and a half from a railhead. It includes removing some existing pavement; construction of 4.465 miles of cement concrete divided highway of 9-inch uniform thickness on 8 inches of compacted selected borrow; drainage; and lighting. The dividing strip will be of varying widths seeded with grass. The job must be completed by Nov. 30, 1951.

Plans show four types of catch basins. Type PW is raised with side inlets. Type PW has an inlet on each side while PW 1 has an inlet on only one side. Type PW 2 has one inlet, but is larger. Type B catch basin is flush with the roadway and has no side inlets.

The minimum wage rates to be paid are for skilled labor, $1.25 an hour; semi-skilled, $0.90; common, $0.75.

Bidders on the job were:

1	George and Lynch, Wilmington, Dela. (contract)	$1,198,169.64
2	James Julian, Elsmere, Wilmington, Dela.	1,202,905.88
3	Wilson Contracting Co., State Road, Dela.	1,208,788.14
4	Standard Bitulithic Co., Newark, N. J.	1,317,704.02

Items		Quantity	Unit prices 1 C	 2
Clearing	A	4.8	$800.00	$600.00
Grubbing	A	1.8	600.00	500.00
Excavation	cy	112,000	.60	.58
for struct	cy	815	5.00	4.00
Borrow	cy	28,000	.68	.65
Borw pit strip'g	cy	5,000	.30	.40
Selec borw	cy	54,000	1.03	1.00
Waterbound macadam	T	1,350	5.75	6.00
Hot-mix asph surf	T	660	12.00	12.00
Cmt conc pav	cy	30,000	16.60	16.50
Patching	sy	200	8.00	7.00
Cmt conc masonry	cy	172	75.00	73.00
Footings	cy	201	61.50	65.00
Abut & pier wall	cy	460	72.00	70.00
Superstr & rail	cy	970	84.00	80.00
Waterpr (super)	sy	940	1.00	1.00
Reinf steel	lb	369,476	.14	.13
Wire mesh reinf	sq	10,070	5.00	6.00
Struc steel	lb	2,940	.25	.20
R. C. Pipe, 12"	lf	400	2.50	2.35
15"	lf	2,900	2.75	2.90
18"	lf	4,700	3.50	3.40
24"	lf	510	5.00	5.00
30"	lf	30	8.00	8.00
Cor metal pipe, 8"	lf	360	1.50	1.90
Vit clay pipe, 6"	lf	250	1.25	2.00
Sheet piles	Mft	6.9	275.00	340.00
Cmt conc gutter				
Type 1	sy	250	4.00	4.25
Type 2	sy	100	4.00	4.10
Parkway curb				
Type 1	lf	2,670	2.50	3.00
Type 2	lf	1,950	2.50	3.00
4" cmt conc sidewk	sf	200	.40	.50
Wood shoulder curb	lf	1,650	.60	.65
Catch basins				
Type P. W	ea	7	100.00	120.00
Type P. W. 1	ea	24	100.00	130.00
Type P. W. 2	ea	3	200.00	130.00
Type B	ea	37	200.00	130.00
Manholes	ea	6	210.00	200.00
Castings	lb	27,000	.13	.14
Wire rope guard fence	lf	1,650	2.20	2.10
End post attachmt	ea	10	35.00	35.00
Topsoil	sy	103,000	.25	.20
Seeding	A	21.5	350.00	400.00
Sodding	sy	16,800	.50	.48
R. C. 1 asph	gal	18,650	.13	.14
R. C. 3 asph	gal	18,650	.13	.14
Slag chips	T	520	5.50	5.60
Crushed chips	T	520	5.50	5.60
Pit run material	cy	36,000	1.02	1.00
Present pav, remov	sy	10,850	.60	.60
Junction boxes	ea	4	150.00	100.00
Adj catch basins	ea	6	25.00	25.00
Adj manhole	ea	1	25.00	25.00
Ditching	lf	350	1.00	1.25
Steel castings	lb	24,300	.45	.50
Iron castings	lb	640	1.25	.50
C. C. piles, cast in place	lf	9,500	9.00	10.30
Conc test piles	lf	140	25.00	22.00
Much excav	ls	......	9,000	12,000
Pylons	ls	......	4,100	4,000
Lighting sys	ls	......	11,000	11,000
Bags extra cmt	ea	50	1.00	1.25
Flake calc chlor	T	10	60.00	45.90

Asphaltic concrete wins on New Jersey Turnpike

Low bidder George M. Brewster and Sons, Inc., of Bogota, N. J., was awarded Contract 62 of the New Jersey Turnpike on Alternate 1, asphaltic concrete pavement, and Alternate 4, type G shoulders.

The price was $7,086,873, 2.7% lower than the $7,279,776 reported in the unit prices in ENGINEERING NEWS-RECORD Nov. 23, 1950, page 66. This difference is due to changes negotiated by the Turnpike Authority with the contractors and all bids were adjusted accordingly.

The principal change was the elimination of truck rests. It was debated that such rests were not entirely necessary on a thruway that requires only two hours to travel its full length. If experience proves them to be needed, they can be added later.

Contract 62 covers paving 24.4 miles of the Turnpike between the Raritan River and Allentown in Middlesex and Mercer Counties, and paving of two interchanges and 34 cross roads.

Belt Parkway lamps, N. Y.

The cost of replacing the sodium lamps and the difficulty in obtaining them has moved New York City to gradually replace the yellow lights with white incandescent lamps, on the Belt Parkway in Brooklyn and Queens.

As the lamps are replaced only when they wear out or are knocked down by a careless motorist, the changeover will take several years.

Costs per lamp:

Item	Sodium	Incandescent
Maint, per year	$51.32	$16.79
Bulbs	14.95	4.33
Reflectors	18.40	4.75
Current, per year	15.80	35.54

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

S. C., Cayce—B.A. 1/3—Town, 250,000 gal. concrete reservoir. Plans deposit $10. Barber, Keels & Assoc., 1307 Marion St., Columbia, engrs.

LOW BIDDERS

Ont., Kingston—Kingston Public Utilities Comn., 6 Queen St., WW purification plant, incl. low and high lift pump. station, chemical storage, application and water filtration plant, from George Hardy Ltd., 163 Wickstead Ave., Leaside, **$485,664*****pumping equipment from Canadian-Allis-Chalmers, Ltd., 630 Dorchester St. W., Montreal, Que. Approx. **$49,471***** other equipment, from Francis Hankin & Co. Ltd., 57 Bloor St. W., Toronto, **$186,250**. CD 11/24.

SEWERS, WASTE DISPOSAL

BIDS ASKED

▲ **N. J., West New York**—B.A. 1/3—Town, 428 60 St., sewage disposal plant, $1,200,000. Frank J. Olerl, 6032 Bergenline Ave., West New York, engr. CD 9/7.

Kan., Hugoton—B.A. 1/4—City, Bob Brubaker, clk., sewage treatment plant, 431 lin. ft. 4-to 12-in. c.i. pipe, 527 lin. ft. 12 in. vitr. clay pipe, etc. The Ediger Eng. Co., 252 Laura St., Wichita, engr.

La., Metairie—B. A. 1/5—Jefferson Parish, Fourth Jefferson Drainage Dist., 648 Helois St., outfall storm sewer. Plans deposit $5.

BRIDGES

LOW BIDDERS

Virginia—State Hy. Dpt., Richmond, rejected bids Nov. 29, 607 ft. bridge over Jackson River, U.S. 60 between Covington and Clifton Forge, Alleghany Co. L.B. **$501,034**. CD 12/4, under LB.

STREETS AND ROADS

LOW BIDDERS

▲ **Ohio**—State Hy. Dpt., Columbus, Dec. 12, twin four lane roadways, divided by 10-ft grass strip from the Illuminating Co. power plant to East Blvd.; exten., wid'n. E. 72 St. from St. Clair Ave. to the lake; 2 cloverleaves to carry traffic off the freeway at East Blvd. and E. 72 St., 2 underpasses for E. 72 St. traffic, a tunnel under the New York Central tracks and a road under the freeway; culverting of Doan Brook from the railroad to the lake; bridge for pedestrians over the new freeway, Cuyahoga Co., from The Horvitz Co., Midland Bank Bldg., Cleveland, **$3,418,797**.

† **Oklahoma**—U. S. Eng., Box 61, Tulsa, Dec. 5, relocation Hy. 69 (Fort Gibson Dam, Grand Neosho River), Muskogee Co., Inv. No. CIVENG 34-066-51-19, from M. E. Gillioz, Box 20, Monett, Mo., **$952,353**. Est. $1,500,000. CD 11/13.

▲ **Texas**—State Hy. Comn., Austin, Dec. 13, flexible base, asph. surf., c. conc., bridge, etc. 2.32 mi. Hy. ST. 225, U 1081 (4), Harris Co., from Gulf Bitulithic Co., 2820 Polk St., Houston, F. M. Reeves & Sons, 1611 Wethersfield Rd., Austin, and Texas Bitulithic Co., 111 Commerce St., Dallas, **$2,569,086**, est. $1,300,000***hot mix b. conc. wid'n. resurf. 1.45 mi. Hy. U. S. 81, C 15-1-41, McLennan Co., from Public Constr. Co., P. O. Box 380, Denton, **$214,713**, est. $248,000***flexible base, two course surf. tr. 12.055 mi. Hy. S. H. 285, C 102-6-4, Kleburg Co., from Heldenfels Bros., Rockport, **$81,234**, est. $115,000***soil asph. base, one course surf. tr. 11.952 mi. Hy. F. M. 1255, V 1322-2-1, Van Zandt Co. and soil asph. base, surf. 5.307 mi. Hy. FM 1394, R 999-1-3, Navarro Co., from E. W. Hable & Sons, Corsicana, **$136,639**, est. $146,000 and **$76,514**, est. $72,000 respectively.

flexible base, two course surf. tr. 12.299 mi. Hy. FM 1343, R 1436-1-1, Medina Co., from Schwope Bros., 6633 W. Commerce St., San Antonio, **$90,094**, est. $78,000***flexible base, one course surf. tr. 5.985 mi. Hy. FM 1417, R 703-3-1, Tyler Co., from Moore Bros. Constr. Co., Lufkin, **$92,063**. est. $117,000*** flexible base, one course surf. tr. 8.416 mi. Hy. FM 441, V 837-2-1, Wharton Co., from The Jarbet Co., Inc., Route 11, Box 172, San Antonio, **$104,027**, est. $120,000***c. conc. 0.312 mi. Hy. U. S. 75, Proj. FI 466 (21), Harris Co., from Holland Page, P. O. Box 1181, Austin, Zone 6, **$351,664**, est $200,000***flexible base, one course surf. tr. 16.647 mi. Hy. FM 1036, 1439, 1443 and 1548, Proj. V 797-7-2, Collingsworth and Wheeler Counties from Cooper & Woodruff, 1203 Dallas Natl. Bank Bldg., Dallas, **$175,232**, est. $158,000.

one course surf. tr. 7.054 mi. Hy. FM 1386, 1387, Proj. R 1393-1-1, Ellis Co. from Bell, Braden, Barker & Gilvin, Inc., Herring Hotel Bldg., Amarillo, **$124,239**, est. $120,000***fdn. course, two course surf. tr. 19.066 mi. Hy. FM 40, 1309, 1308, 378 and 1525, V 644-1-4 and others, Lubbock and Crosby Counties, from J. R. Fanning, P. O. Box 1047 Lubbock, **$139,884**, est. $158,000***soil asph. base, two course surf. tr. 2.735 mi. Hy. FM 1094, R 1258-2-2, Fort Bend Co., from John F. Buckner & Sons, Cleburne, **$74,297**, est. $75,000***grading, sections, bridge, flexible base, two course surf. tr. 12.961 mi. Hy. SH 243, S 919, (5), Kaufman Co., from Southwest General Constr. Co., 426 Reserve Loan Life Bldg., Dallas, **$288,603**, est. $197,000. CD 11/28, and 11/24.

▲† **Alaska**—Bureau Pub. Roads, Dpt. Commerce, Juneau, Dec. 12, clearing, grubbing, grading, tunnel and draining, 7.54 mi. Seward-Anchorage Hy., Sect. B1, between Mile Posts 50.3 and 58, from M. J. Kuney Co., N 120 Ralph St., Spokane, Wash., **$1,358,006**. CD 11/22.

EARTHWORK, WATERWAYS

BIDS ASKED

La., Metairie—B.A. 1/5—Fourth Jefferson Drainage Dist., 648 Helois Ave., 400,000 to 700,000 cu. yd. common excav. Jefferson Parish.

LOW BIDDERS

† **Idaho**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, Wash., rejected bids Dec. 7, first stage construction for Albeni Falls dam, Oreille River in Bonner Co., near Newport, Bonner Co., incl. rock excav. and cofferdams, Serial No. CIVENG-45-108-51-25. L. B. **$539,900**. Est. $377,456. Will re-advertise. CD 12/12, under LB.

CONTRACTS AWARDED

▲† **Illinois**—U. S. Eng., 808 U. S. Court House & Custom House, 114 Market St., St. Louis, 1, Mo., bank protection for Chain of Rocks Canal, Mississippi River, Granite City and vicinity Madison Co., divded into 2 sections Proj. Item No. 1 protection east side of canal and Proj. Item II on west side of canal, Inv. No. CIVENG-23-065-51-23, to Massman Constr. Co., 20 W. 9 St., Kansas City, Mo., and Kansas City Bridge Co., 928 Bway., Kansas City, Mo., **$1,469,200**. Est. $1,824,903. Bids 11/21, awarded 12/5. CD 11/27, under LB.

PUBLIC BUILDINGS

BIDS ASKED

Mich., Kalamazoo—SCHOOL—B.A. 1/4—Bd. Educ., Loren D. Phelps, secy., School Dist. 6, Fractional, Kalamazoo and Portage Twps., brick, masonry Junior High School addn., Portage and Cork Sts., $300,000, Louis C. Kingscott & Assoc., Inc., 511 Monroe St., archts.

LOW BIDDERS

▲ **Calif., San Jose**—SCHOOL—San Jose Unified School Dist., San Jose, Dec 12, technical high school, from O. E. Anderson, 1075 N. 10 St., **$1,272,456**. CD 11/29.

▲ **Mass., Boston**—HOUSING—City of Boston Housing Auth., 230 Congress St., Dec. 8, thirteen 3 story brick walkup and seven row houses incl. 354 units, Faywood, Faldemar and Orient Ave. from M. S. Kelliher Co., 294 Washington St., Boston, **$4,298,452**.

▲ **N. J., Hackensack**—HOUSING—Housing Auth., 166 Main St., Dec. 13, 144 apartment., Newman St. and Railroad Ave., from Frank W. Bogert, 324 Railroad Ave., **$1,194,220**. CD 11/29.

▲ **Tenn., Nashville**—HOUSING—Nashville Housing Auth., 701 S. 6 St., Dec. 14, construct 200 unit housing for negroes 12 and Edgehill Aves., from Cowan Lumber & Planning Co., 1419 Clinton St., **$1,850,546**. CD 11/24.

▲ **Tex., Brownsville**—HOUSING—Brownsville Housing Auth., Brownsville, Dec. 14, 128 housing units, (Tex. 7-4), and 128 housing units. (Tex. 7-5), from Marchant Bros., Box 545, Mercedes, **$1,046,487** and **$1,084,492** respectively. CD 11/20.

▲ **Tex., Wichita Falls**—DWELLINGS—Wichita Falls Housing Auth., Ben D. Donnell, chn., Wichita Falls, Dec. 11, 150 brick dwelling units in 70 one story bldgs., and administration bldg., concrete fdn., from Texas Housing Corp., 9003 Denton Dr., Dallas, **$1,266,250**. Est. $1,250,000. CD 11/16.

CONTRACTS AWARDED

Ala., Auburn—DORMITORY—Alabama Polytechnic Institute, Auburn, men's dormitory, to S. J. Curry & Co., Albany, **$860,616**. Bids 12/7. CD 12/13, under LB.

▲† **Ky., Paducah**—PLANT—U.S. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., plant to produce U-235, by gaseous diffusion process, to F. H. McGraw & Co., 51 E. 42 St., New York 17, N. Y. Total estimated cost Approx. **$500,000,000**. Giffels & Vallet, Inc., 1000 Marquette St., Detroit 26, Mich., and Sargent & Lundy, Inc., 140 S. Dearborn St., Chicago 3, Ill., engrs.

▲ **N. J., Newark**—HOUSING—Newark Housing Auth., 57 Sussex Ave., 630—unit low-rent housing foot of Grifton Ave., to Terminal Constr. Corp., 194 Hackensack Rd., Wood Ridge, **$5,135,000**. Bids 12/12, awarded 12/14. CD 11/16.

▲ **N. Y., White Plains**—APARTMENT—White Plains Housing Auth., 11 William St., Winbrook Apartment, to Kent Brown Furtsch, Inc., 384 E. 149 St., New York, Zone 55, **$1,234,568**. Bids 11/1.

S. D., Brookings—AGRICULTURE HALL—Bd. Regents, Pierre, general contract agricultural hall at South Dakota State College, to R. A. Mark, Brookings, and Sioux Falls Constr. Co., 244 Boyce Greeley Blk., Sioux Falls, **$501,090**. Bids 11/10. CD 11/22, under LB.

▲ **Wash., Seattle**—SCHOOL—School Dist. 1, 815 4 Ave. N., 100,000 sq. ft. Catherine Blaine Junior High School, to Strand & Sons, 3939 University Way, Zone 5, **$1,272,000**. Bids 12/7.

COMMERCIAL BUILDINGS

SOON LETS CONTRACT

▲ **La., Lake Charles**—HOSPITAL—B. A. 1/31—Lake Charles Memorial Hospital Assn., Commerce Bldg., memorial hospital, $1,000,000, Dunn & Quinn, 1735 South St., archts. CD 10/18.

Mich., Detroit—DEPARTMENT STORE—Federal Department Stores, Inc., 1200 E. 6 Mile Rd., soon lets contract 1 story, bsmnt., 240x260 ft. department store, Grand River and Oakman Sts. $500,000. Charles N. Agree, 1140 Book Bldg., archt. CD 9/8.

LOW BIDDERS

▲ **Mass., New Bedford**—HOSPITAL, etc.—St. Luke's Hospital, 101 Page St., hospital addns., alterations, Page, Allen, West and Taber Sts., from Vope Constr. Co., 54 Easton Ave., Malden, **$1,800,241**. CD 12/8.

Okla., Stillwater—CHURCH—First Baptist Church, 701 Duncan St., church auditorium and educational bldg., from Hoke Constr. Co., 218 W. 9 St., **$510,265**. Noftsger & Lawrence, 2756 N. W. 23 St., Oklahoma City, Zone 7, archts.

▲ **Tex., Corpus Christi**—HOSPITAL—Spohn Hospital, c/o Mother Benjamin, 1436 3 St., Dec. 19, 5 story, steel, brick, stone hospital addn., from Gilbert Falbo Co., 107 Morales St., San Antonio, **$1,000,928**. Est. $600,000. CD 12/6.

CONTRACTS AWARDED

Calif., Sacramento—RESIDENCES—Bonnie Brae Homes Inc., 2670 Danube Dr., 53 residences in Drayton Heights. Owner builds, **$415,050**.

▲ **Mass., Boston** APARTMENT—River House Trust Agents Hunneman & Co., 5 Arlington St., 222-unit apartment, 145 Pinckney St. and Embankment Rd., to Schein Cohen Constr. Co., c/o E. T. Steffian, archt., 11 Beacon St., Boston, **$2,000,000**.

▲ **N. Y., Ithaca**—ANABEL TAYLOR HALL—Cornell University, Ithaca, Anabel Taylor Hall United Religious Work Bldg., to John W. Cowper Co., Inc., Sidway Bldg., Buffalo, Est. $1,500,000. CD 11/15, under LB engr.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

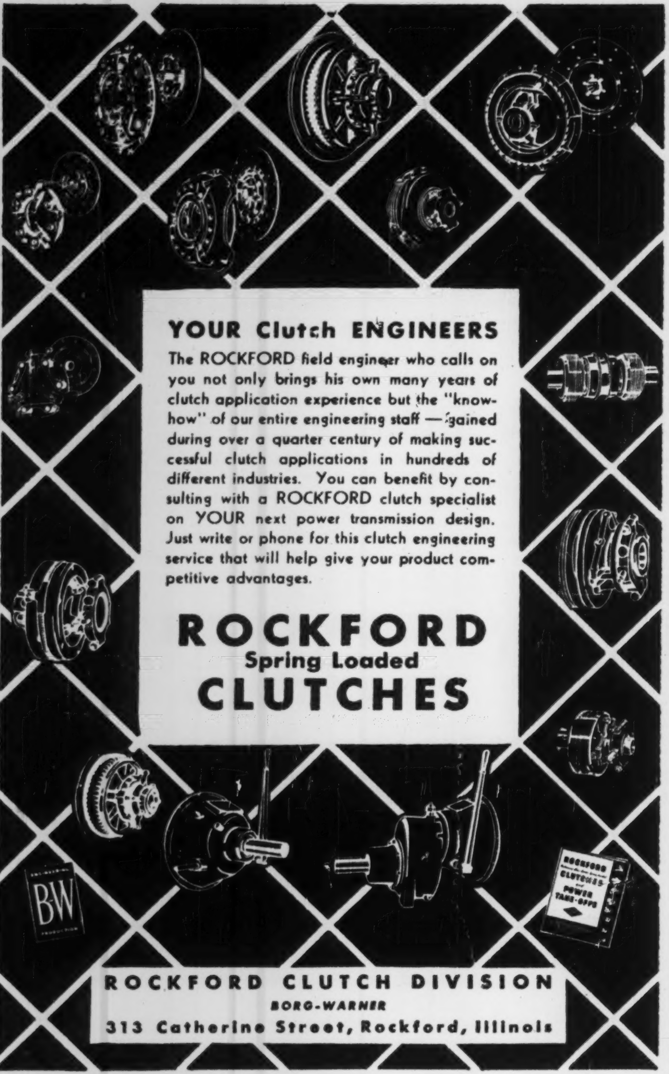
LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily



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Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

▲ **Wis., Milwaukee**—COLLEGE, etc.—School Sisters of St. Francis, 1501 S. Layton Blvd., Zone 15, college, Alverno College for Women, to James McHugh Constr. Co., Inc., 6449 S. Park Ave., Chicago, Ill. Approx. **$3,000,000.** CD 11/9.

INDUSTRIAL BUILDINGS

CONTRACTS AWARDED

▲ **Ala., Mobile**—REFINERY—Henderson Sugar Refinery, 749 S. Peters St. New Orleans, La., sugar refinery, to Swinerton & Walberg Co., 225 S. Bush St., San Francisco, Calif., Approx. **$2,000,000.**

▲ **Calif., Maywood**—PLANT—Chrysler Corp., 5800 S. Eastern Ave., Los Angeles, 1 and part 2 story rein.-con. assembly plant addn., to Wm. P. Neil Co. Ltd., 4814 Loma Vista, Los Angeles. **$5,300,000.**

Ky., Louisville—PLANT—E. I. du Pont de Nemours & Co., Inc., 1374 S. 2 St., neoprene plant addn., Camp Ground Rd., own forces. **$500,000.** CD 10/27.

▲ **S. C., Anderson**—PLANT—Textron Southern Co., c/o contractor, toxaway plant addn., to Daniel Constr. Co., 429 N. Main St., Greenville. Approx. **$1,000,000.** CD 6/29.

UNCLASSIFIED

BIDS ASKED

California—TRAFFIC SIGNAL SYSTEM—B.A. 1/11—State Div. Hys., P. Wks. Bldg., Sacramento, traffic signal sys., lighting and channelization Rt. 12 at East LaMesa Blvd., etc., San Diego Co. G. T. McCoy, Sacramento, state hy. engr.

CONTRACTS AWARDED

Oklahoma—RURAL DISTRIBUTION LINES—Southeastern Electric Co-operative Assn., Durant, 460 mi. rural distr. lines, Proj. Okla. 27, Bryan Co., to R. D. Cooper, Istrouma Hotel, Baton Rouge, La. **$690,626.** Est. $710,000. Awarded 11/23. CD 11/9, under LB.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Alhambra—City Water Dpt., 201 W. Main St., 18 in. main in Front St., Garfield to Marengo Sts., **$70,000**; 6,000 ft. 14 in. pipe line in Hampden Terrace. **$61,000.** John W. Clay, supt.

▲ **Mass., Salem and Beverly**—Cites of Salem and Beverly Water Supply Bd., Salem City Treas., 93 Washington St., Salem, 1,700,000,000 gal. reservoir Putnamville sect. from intersection Locust St. and Valley Rd. to Newburyport Turnpike, Danvers, **$2,225,000.**

Mass., Taunton—City, Water Dpt., City Hall, 20 m.g. reservoir, Prospect Hill, **$750,000.** **Fay Spofferd & Thorndike**, 11 Beacon St., Boston, consult engrs. CD 3/31/44

▲ **N. C., Raleigh**—City, W. H. Carper, mgr., bond election Feb. 3, water supply sys. **$3,118,000.** (Correction—date election). CD 12/7.

S. C., North Augusta—Town, WW imbrvs. **$322,000.** Patchen & Zimmerman, Daniel Field, Augusta, Ga., consult. engrs.

▲ **B. C., Vancouver**—Greater Vancouver Water Dist., 500 Beatty St., concrete gravity type dam, 640 ft. long at the crest and height 325 ft., straight spillway section, North Vancouver. **$6,000,000.**

Ont., Ridgeway—Bertie Twp., Ridgeway, water line from Ridgeway to Stevensville. **$300,000.** C. R. Hagey, Fort Erie, engr.

Que., Ville Jacques Cartier—Municipality, ratepayers voted approval WW sys. **$500,000.** Lalonde & Assocs., 958 Duplop Ave., Outremont, engrs. CD 12/30.

SEWERS, WASTE DISPOSAL

Calif., Martinez—Mountain View Sanitary Dist., Palm and Almond Sts., **$250,000** bond election Jan. 16, sewage disposal plant. Phil. R. Jones, 2511 San Pablo Ave., San Pablo, consult. engr.

Calif., Seal Beach—City Council, 201 - 8 St., sewage treatment plant addn. **$129,811.** Currie Eng. Co., Inc., Anderson Bldg., San Bernardino, consult. engr.

Conn., Hartford—City, 115 Broad St., trunk sewer and pump station, Hartford to Windsor, **$555,000.** CD 1/29/45.

▲ **Kan., Kansas City**—City, sewage disposal sys. **$1,000,000.** Truman Schlup, 1401 Fairfax Trafficway, consult. engr.

▲ **N. C., Raleigh**—City, W. H. Carper, mgr., Raleigh, bond election Feb. 3, sewage purification sys. **$1,347,000**; city surf. drainage sewerage sys., **$500,000.** (Correction—date election). CD 12/7.

Pa., Blairsville—Blairsville Boro, Blairsville sewage disposal plant. **$300,000.** Gilbert Assoc., Inc., 412 Washington St., Reading, engrs.

Tex., Garland—City, sanitary sewers. **$225,000.** Homer A. Hunter, 4704 Greenville St., Dallas, consult. engr. CD 9/27.

Tex., Katy—City, voted bonds, sanitary sewerage sys. **$110,000.**

Tex., Midland—Midland Co., c/o Comrs. Court, Midland, 18- to 72-in. concrete storm sewers. **$400,000.** Homer & Studdert, 210 W. Indiana St., consult. engrs.

▲ **Tex., Port Arthur**—City, voted bonds, storm sewers. **$1,000,000.** Charles P. Smith, Orange, and George Schaumberg, American Natl. Bank Bldg., Beaumont, consult. engrs. CD 11/14.

Tex., Robstown—City, sanitary sewer lines sys. rehabilitation. **$200,000.** Sigler, Clark & Winston, Weslaco, consult. engrs. CD 9/19.

Tex., Texas City—Town, sewage treatment plant. **$160,000.** J. B. Dannenbaum, 3940 Main St., Houston, consult. engr. CD 10/12.

W. Va., Martinsburg—City, 3 m.g. sewage treatment plant **$250,000.** Whitman, Requarct & Assoc., 1304 Paul St., Baltimore, Md., consult. engrs. CD 2/17/47

Wis., Bayfield—City, sewage treatment plant, **$129,148.** Davy Eng. Co., 502 Main St., LaCrosse, consult. engr.

Que., Ville Jacques Cartier—Municipality, ratepayers vote approval sewage sys. **$300,000.** Lalonde & Assocs., 958 Dunlop Ave., Outremont, engrs. CD 12/30, under Water Supply.

BRIDGES

▲ **New York**—New York York State Thruway Authority, Albany,

Rockland and Westchester Counties—bridge over Hudson River from Nyack, Rockland Co. to Tarrytown, Westchester Co. **$50,000,000.** Madigan-Hyland, 28-04 41st. Ave., Long Island City, consult. engrs.

Tex., Port Arthur—City, voted bonds, bridges, **$475,000.** Charles P. Smith, Orange, and George Schaumberg, American Natl. Bank Bldg., Beaumont, consult. engrs. CD 11/16.

Tex., Texarkana—City, voted bonds earth fill, concrete, steel underpass under K. C. Southern Ry. on New Boston Rd. **$225,000.** Homer A. Hunter, 4704 Greenville St., Dallas, consult. engr.

O., Toledo—New York Central System E. A. Dougherty, ch. engr. (west of Buffalo), LaSalle St. Station, Chicago 5, Ill., railroad bridge over tracks, Broadway and Emerald Ave. **$500,000.**

Ont., Chatham—Kent Co. Council, Chatham, steel, concrete bridge over Thames River. **$350,000.** W. G. Colby, County Bldgs., engr. CD 11/9/43.

STREETS AND ROADS

Calif., Redwood City—San Mateo Co., Court House, imprv. University Ave., East Palo Alto. **$160,000.** Frost & Brian, 736 Main St., consult. engrs.

Colorado—State Hy. Dpt., Denver,

Lincoln Co.—imprv. Highways 94 and 71, **$100,000.**

N. C., Raleigh—City, W. H. Carper, mgr., Raleigh, bond election Feb. 3, streets, **$750,000 (Correction—date election). CD 12/8.**

Tex., Pasadena—South Pasadena Plaza, Pasadena, construct, paving new streets. **$100,000.** A. D. Schmid, Pasadena, consult. engr.

Tex., Pasadena—South Pasadena Plaza, c/o South Pasadena Corp., Pasadena, (second proj.) street constr. and asph. paving, north of Spencer Hy. **$100,000.** A. D. Schmidt, 3710 LaBranch St., Houston, consult. engr. CD 12/11.

▲ **Tex., Port Arthur**—City, voted bonds, street paving throughout city, **$2,000,000**; grading, open drainage for South area, **$400,000**; special street paving, **$560,000**; black-topping existing concrete paved streets, **$370,000.** Charles P. Smith, Orange, and George Schaumberg, American Natl. Bank Bldg., Beaumont, consult. engrs. CD 11/15.

Tex., Robstown—City, street imprvs., paving. **$240,000.** Sigler, Clark & Winston, Weslaco, consult. engrs. CD 9/19.

Tex., Texarkana—City, voted bonds, street constr., paving and drainage. **$300,000.** Homer A. Hunter, 4704 Greenville St., Dallas, consult. engr.

EARTHWORK, WATERWAYS

Tex., Port Arthur—City, voted bonds, open drainage. **$450,000.** Charles P. Smith, Orange, and George Schaumberg, American Natl. Bank Bldg., Beaumont, consult. engrs. **CD 11/16.**

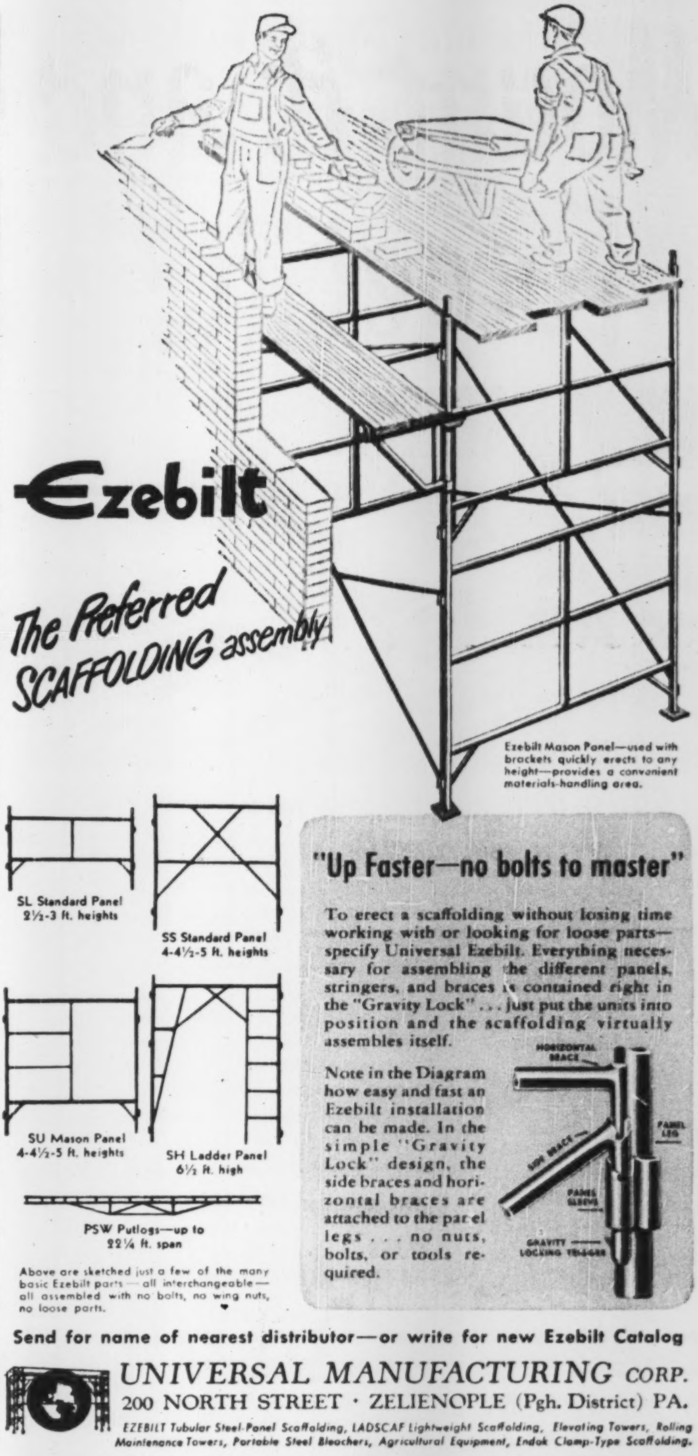
AIRPORTS

▲ **Mo., Clayton**—HANGAR—McDonnell Aircraft Corp., Lambert-St. Louis Municipal Airport, St. Louis, Zone 21, 200x500 ft., concrete, steel test flight hangar west of present madin bldg. at aircraft plant at Lambert-St. Louis Municipal Airport. **$1,500,000.** Sverdrup & Parcell, Inc., Syndicate Trust Bldg., 915 Olive St., St. Louis, Zone 1, consult. engr.

▲ **Tenn., Memphis**—TERMINAL—City, City Hall, plans by Furbringer & Ehrman, U. P. Natl. Bank Bldg., and Eason, Anthony, McKinnie & Cox, Inc., Sterick Bldg., terminal bldg. at Municipal Airport. **$1,000,000.** CD 11/27.

LATIN AMERICA

Mexico, Matamoros—Mexican Federal Govt., c/o Dpt. Navy, Mexico City, plans construction of an ocean port to serve Matamoros (opposite Brownsville, Tex.). **$3,500,000.**



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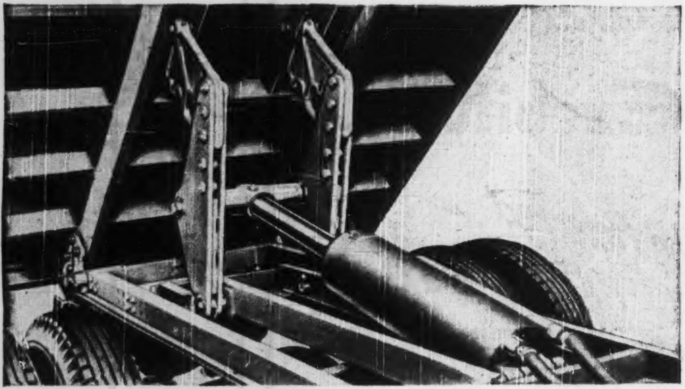

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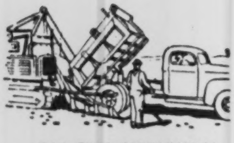

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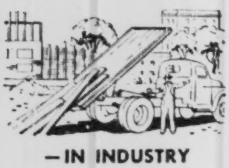

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▲ **Mexico, Mexico City**—Mexican Govt., Sria. de S. y A. P., Paseo de la Reforma y Lieja, Mexico City, plans 9 story bsmnt., national ophthalmologic institute. **$1,750,000.**

PUBLIC BUILDINGS

▲ **Calif., Antioch**—SCHOOL—Antioch-Live Oak City Unified School Dist., Antioch, **$5,000,000** bond election Jan. 16 high school plant, etc.

▲ **Calif., Inglewood**—SCHOOL—Inglewood School Dist., 111 H. Grevillea St., bond election Jan. 19, 4 schools, **$1,900,000**. CD 4/24/47.

▲ **Calif., Richmond**—HOSPITAL—West Contra Costa Hospital Dist., Richmond, plans by Stone & Mulloy, 619 California St., San Francisco, 5 story, 85,000 sq. ft., 100-bed hospital, in San Pablo, **$2,000,000.** W. Adrian, 417 Market St., San Francisco, consult. engr.

Calif., Santa Cruz—HOSPITAL—Santa Cruz Co., Court House, plans by Easterly, Ellenswood & Easterly, 1006 A Lincoln St., Watsonville, tuberculosis wing addn. to Santa Cruz County Hospital, **$400,000.** CD 8/30/45.

Conn., Milford—SCHOOLS—Bd. Educ., Town Hall, school addn., Brewster Rd.; school addn., W. Main St. **$650,000.**

Ill., Waukegan—SCHOOL—Bd. Educ., City School Dist. 61, William W. Bratzke, bus. mgr., 128 N. County St., voted $700,000 bonds, 4 room addn. Washington School, **$100,000;** Southwest School addn., **$275,000;** Central Area School **$325,000.** Ganster — Henninghausen, 222 Washington St., archts. for Washington School addn. and Central Area School. Ekstrand, Schad & West, c/o owner, archts. for South West School. CD 9/28.

▲ **Kan., Kansas City**—POWER PLANT—City, municipal electric power plant, in West Armourdale Industrial Dist. **$10,000,000.** Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., consult. engr. CD 11/24/48.

La., Franklinton—SCHOOL—Washington Parish, Franklinton, voted bonds school imprvs., **$757,000.** Stone Bros., Carondolet Bldg., New Orleans, archts. CD 11/1.

▲ **Md., Catonsville**—HOSPITAL—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, masonry male patients bldg., **$1,025,000;** altering power house, **$710,000;** masonry employees dormitory, **$520,000;** maintenance shop bldg., etc. **$150,000;** road imprvs., exten., **$110,000,** at Spring Grove State Hospital, John B. Funk, 506 Park Ave., Baltimore, Zone 1, ch. engr.

▲ **Md., Sabillasville**—HOSPITAL—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, Victor Cullen State Hospital. **$1,570,000.** John B. Funk, 506 Park Ave., Baltimore, Zone 1, ch. engr.

Md., Woodensburg (P. O. Reisterstown)—SCHOOL, etc.—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, 2 story, bsmnt., 37x95x34 ft., stone dormitory and school addn., Montrose School for Girls. **$426,745.** John B. Funk, 506 Park Ave., Baltimore, Zone 1, ch. engr.

▲ **Mass., Boston**—GARAGE—City, City Hall Annex, plans by John M. Gray Co., 175 High St., 67,474 sq. ft. cage type garage, Milk, Congress and Franklin Sts. **$1,250,000.**

Mass., Braintree—SCHOOLS—Town, R. W. Proctor, supt., 10 Tremont St., 1 and 2 story, brick, steel, concrete Lakeside School, **$500,000;** brick, steel, concrete high school addn., 538 Washington St., **$300,000.**

Mich., Saginaw—SCHOOL—City, Bd. Educ., plans by Frantz & Spence, 118 N. Washington Ave., 2 story, bsmnt., brick, steel, concrete high school, East Side. **$500,000.** CD 10/2/45.

▲ **Minn., Fergus Falls**—SCHOOL—Bd. Educ., A. A. Vollbrecht, clk., voted **$1,350,000** bonds, Senior High School. Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 2/12/45.

▲ **Minn., Hopkins**—SCHOOL—Bd. Educ., L. H. Tanglen, supt., voted bonds $1,300,000, 1 and 2 story, brick grade school; and another grade school, **$800,000.** Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 7/6/45.

▲ **Minn., St. Paul**—SCHOOLS—Bd. Educ., E. Williams, supt., Spring and Eustis Sts., voted $3,200,000 bonds, high school **$1,895,000;** grade school in Falcon Heights, **$337,080,** grade school in Roseville, **$310,400.** CD 11/2.

Mo., Independence—ARMORY—City, c/o Mayor Robt. P. Weatherford, Jr., 2 story, bsmnt., 120x230 ft. armory for Battery D, 129 field artillery, vehicle storage, etc. 23 and Chrysler Sts. **$400,000.**

Neb., Grand Island—HIGH SCHOOL—Bd. Educ., E. W. Wiltse, supt., Grand Island, high school. **$500,000.** CD 12/15/49.

Nev., Wells—HIGH SCHOOL—Elko Co. Bd. Educ., Wells, plans by Fetzer & Fetzer, Zions Savings Bank Bldg., Salt Lake City, Utah, high school. **$425,000.**

▲ **N. J., Trenton**—HOUSING—Trenton Housing Auth., 875 N. Willow St., plans by Micklewright & Mountford, 72 Ewing St., housing, Mellon and Oakland Sts. **$1,500,000.** CD 2/17.

N. J., Woodbine—STATE HOSPITAL—N. J. Dpt. Institutions, State Office Bldg., Trenton, state hospital, **$500,000.**

N. M., Albuquerque—AUDITORIUM—City, plans by Gordon Ferguson, 111 S. Amherst St., masonry 3,500 seating capacity theatre type auditorium. **$900,000.** CD 7/16/46.

O., Cleveland—SCHOOLS—Mayfield Village Local School Dist., Mayfield Village, plans by Fulton, Krinsky &

DelaMotte, engrs. and archts., 6014 Euclid Ave., two 1 story, 100x180 ft. steel, brick, concrete block school addns., concrete floors. **$400,000**

▲ **Pa., Hollidaysburg**—HOSPITAL—General State Auth., 18 and Herr Sts., Harrisburg, plans by Clayton J. Lappley, Riverview Manor Apartments, Harrisburg, hospital to house 300 patients at Hollidaysburg State Hospital. **$1,280,000.** A. F. Jones, c/o owner, ch. engr. CD 6/2[illegible]/49.

▲ **Pa., Phila.**—HOUSING—Phila. Housing Auth., 42 S. 15 St., plans by Walter Antrim & Charles G. Etter, 117 S. 17 St., Housing Development Norris A and Norris B, **$2,820,000;** plans by Davis, Dunlap & Carver, 1717 Sansom St., Harrison Housing, Master, Thompson, Warnock and 10 Sts., **$3,320,000.** CD 9/12/49.

Pa., State College—MINERAL SCIENCES—General State Auth., 18 and Herr Sts., Harrisburg, Mineral Sciences Bldg. addn. at Pennsylvania State College. **$792,000.** CD 9/28/48.

R. I., East Providence—SCHOOL—Town of East Providence School Dpt., East Providence, plans by R. Milton Kenyon, 124 Taunton Ave., 1 story, 175x40x86 ft., cinder block, brick school, Riverside St. **$650,000.** CD 12/2/49.

Tex., Carthage—COURT HOUSE—Panola Co., Thomas H. Sharp, judge, Carthage, voted bonds masonry court house. **$500,000.** Preston M. Geren, 905 Neil P. Anderson Bldg., Fort Worth, archt. CD 11/24.

▲ **Tex., Galveston**—HOSPITAL—John Sealy Hospital, Sealy & Smith Fdn., 915 Strand St., expansion hospital now under construction, from original 5 story to 9 story, penthouse. **$2,400,000.**

Wis., Milwaukee—SCHOOL—School Bd., 1111 N. 10 St., Zone 3, plans by Grassold & Johnson, 734 N. Jefferson St., Zone 2, 66 St. Grade School. **$850,000.**

Ont., Alexandria—SCHOOL—Glengarry Area High School Bd., Alexandria, school. **$400,000.**

Ont., Peterborough—HIGH SCHOOL—Bd. Educ., J. Huggins, secy-treas., 246 Rutlidge St., plans by John B. Parkin Assoc., 717 Church St., Toronto, high school, Cameron St. and Monagham Rd., **$585,000.** Ratepayers approved debenture issue Dec. 5.

Ont., Sault Ste. Marie—SCHOOL—Bd. Educ., H. J. A. Brown, secy., ratepayers approved by-law technical and commercial high school, **$495,000.** J. B. Parkin & Assocs., 717 Church St., Toronto, archts. CD 11/24.

Ont., Toronto—HOSPITAL—York Twp., 40 Jarvis St., plans by John B. Parkin Assoc., 717 Church St., 3 story Northwestern General Hospital, Keele and Strathnairn Ave., **$750,000.** Taxpayers on Dec. 9. voted debenture issue. CD 11/21.

COMMERCIAL BUILDINGS

Ala., Huntsville—HOUSING—Dpt. Army, South Atlantic Div., P. O. Box 1899, 536 Old Post Office Bldg., Atlanta, Ga., construct, manage and finance, 120 army housing units at Recstone Arsenal. Approx. **$600,000.** Van Keuren, Davis & Co., American Life Bldg., Birmingham, archts. CD 12/6.

Calif., Long Beach—OFFICE—Mytinger & Casselberry, 1724 Santa Fe Ave., plans by Adrian Wilson, 816 W. 5 St., 3 story, rein.-con. office, **$400,000.**

Calif., Los Angeles—OFFICE—Pacific Coast Borax Co., 510 W. 6 St., 3 story, 70x190 ft., rein.-con. office 622 Shatto Pl. **$500,000.** Albert C. Martin & Assocs., 333 S. Beaudry St., consult. engrs.

▲ **Calif., Los Angeles** — SCHOOL, etc. — St. Vincents Hospital, 2131 W. 3 St., plans by Austin, Field & Fry, 2311 W. 3 St., rein.-con., school and hospital addn. **$1,505,000.** Ernest Lee, 2311 W. 3 St., engr.

▲ **Calif., Oceanside** — DWELLINGS — Mobilhomes Corp., 2751 Frontier St., San Diego, 109 frame, stucco dwellings, near Camp Pendleton, **$1,000,000.**

▲ **Conn., Hartford**—BUSINESS CENTER—Travelers Insurance Co., Albany Ave., modern shopping center, 1,000 car parking area incl. market, service bldgs., stores, bank, theater, 14-acre tract site, **$2,000,000.**

Del., Wilmington—OFFICE—Beneficial Industrial Loan Corp., 13 and Market Sts., plans by Walter Carlson, Penna R. R. Bldg., office, 13 and Market Sts. **$500,000.**

Fla., St. Petersburg—CHURCH, etc.—First Baptist Church, 120 4 St. N., plans by Famco Corp., 6902 Castor Ave., Phila., Pa., church, Sunday School and gymnasium, **$500,000.** CD 1/29/47.

Ga., Atlanta—OFFICE—Coastal States Life Insurance Co., Mortgage Guarantee Bldg., plans by David Cuttino & Assocs., Mortgage Guarantee Bldg., office, Approx. **$500,000.**

▲ **Ill., Galesburg**—SCIENCE, etc.—Knox College, Galesburg, plans by Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Zone 3, science bldg., library, dormitory and chapel. **$2,000,000.** CD 11/1.

▲ **Ill., LaGrange** — Y.M.C.A. BLDG. — Y.M.C.A., La Grange, Y.M.C.A. Bldg **$1,700,000**

▲ **Ind., Evansville**—HOSPITAL, etc.—Baptist Memorial Hospital, 400 E. 44 St., plans by Schmidt Garden & Erickson, 104 S. Michigan St., Chicago, 3, Ill., 4 story, bsmnt., hospital addn., laundry and power house. **$1,500,000.**

Mass., Worcester—CLUB HOUSE—Worcester Girls Club, 67 Lincoln St., plans by G. Adolph Johnson, 390 Main St., 2 story, bsmnt., 150x200 ft. club house, **$500,000.**

▲ **Mich., Royal Oak**—HOSPITAL—Oakland Hospital, Howard L. McGregor Jr., chn., E. A. Tomlinson, pres.

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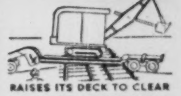

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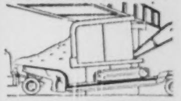

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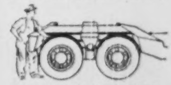

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Hospital Bldg. Comn., 7-226 Grand Motors Bldg., Detroit, plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, Minn., brick, steel, concrete hospital, Woodward and Adams Sts. **$3,500,000.** Dr. Christopher Parnall, Ann Arbor, hospital consult.

N. Y., Brooklyn—APARTMENT—Maxwell Homes, Inc., 1914 Pitkin Ave., Zone 7, plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, 6 story apartment, 275-77 Rockaway Parkway. **$585,000.**

▲ **N. Y., Corona**—APARTMENT—Markett Constr. Co., Inc., c/o Morris Rothstein & Son, archts., 186 Joralemon St., Brooklyn, Zone 2, 6 story apartment, 114 St. from Northern Blvd. to 34 Ave. **$2,850,000.**

▲ **Pa., Latrobe**—DORMITORY—St. Vincents College, Latrobe, plans by Phillip Friedman, 121 S. Negley Ave., Pittsburgh, 3 and 6 story, bsmnt., brick, steel dormitory, **$400,000;** 1 story, bsmnt., 200x291 ft. steel activities bldg., **$700,000.** CD 12/7/45.

Pa., Phila.—APARTMENT—Fairfield Apartments, c/o Aaron Colish, archt., 117 S. 17 St., apartment. Approx. **$500,000.**

Tenn., Memphis—CHURCH—Second Presbyterian Church, 4055 Poplar St., plans by Thomas & Wagoner, 117 S. 17 St., Phila., Pa., church. **$750,000.**

▲ **Tenn., Tullahoma**—HOMES—Tennessee Industries, Inc., c/o Hart, Freeland & Roberts, archts., 3rd Natl. Bank Bldg., Nashville, 485 homes. **$5,000,000.**

Tex., Fort Worth—CHURCH—Polytechnic Methodist Church, c/o Rev. Hayden Edwards, 3017 Avenue E, plans by Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., 42,000 sq. ft. church, incl. sanctuary with balcony, chapel and 2 story educational bldg., face brick, stone, air-conditioning, 3200 blk. E. Rosedale, **$600,000.**

Tex., Lubbock—CHURCH—First Methodist Church, c/o Rev. H. T. Robinson, Lubbock, plans by Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., Fort Worth, brick, terra cotta church, incl. tower and sanctuary and chapel, air-conditioning. **$750,000.**

▲ **Tex., Pasadena**—DWELLINGS—South Pasadena Plaza, c/o South Pasadena Corp., Pasadena, Proj. No. 1, 150 five-room frame dwellings, **$1,075,000;** Proj. No. 2, 175 five and six room frame, stucco dwellings, **$1,225,000;** Proj. No. 3, 115 six room type frame, masonry dwellings, concrete slab fdn. **$805,000,** in areas off Red Bluff Rd. and Spencer Hy.

INDUSTRIAL BUILDINGS

Ala., Birmingham—FACTORY—General American Transportation Co., 135 S. LaSalle St., Chicago 3, Ill., factory. **$300,000.**

▲ **Calif., East Los Angeles**—WAREHOUSE,etc.—Crown-Williamett Paper Co., 2945 E. 12 St., 400,000 sq. ft., warehouse, office and conversion plant, **$1,500,000.** Albert C. Martin & Assoc., 33 S. Beaudry St., Los Angeles, consult. engrs.

Calif., San Leandro—WAREHOUSE—The Republic Supply of California, 1401 Park Ave., Emeryville, warehouse. **$400,000.**

Conn., West Hartford—PLANT—Nutmeg Chrome Corp., 79 Chapel St., Hartford, plans by Malcolm R. Knox, 57 Farmington Ave., Hartford, 1 story, 42x100 ft., brick, steel, cinder block plant, 15x15x ft. boiler room, 12x42 ft. office sect., Vanderbilt and Oakwood Aves.

▲ **Ill., Chicago**—PLANT—Darling & Co., 4201 S. Asnland St., Chicago, Zone 9, fertilizer plant, Packers Ave. and 47 St. **$2,000,000.**

▲ **Ill., Niles**—FACTORY—International Register Co., 2620 W. Washington St., Chicago, plans by Engineering Systems, Inc., 221 N. LaSalle St., Chicago, Zone 1, 180,000 sq. ft. factory, Howard Ave. and Central St. **$1,000,000.**

Ind., Columbia—WAREHOUSE, etc.—Public Service Co. of Indiana, 25 and Central Sts., plans by Naess & Murphy, 80 E. Jackson St., Chicago, 4, Ill., warehouse, garage and office, **$375,000.**

Md., Frederick—PLANT—Lansdale Tube Co., Lansdale, Pa., mfg. plant. **$500,000.** M. Ward Easby, Inc., 1201 Chestnut St., Phila., Pa., consult. engr.

▲ **Md., Frederick**—PLANT—Philco Radio & Television Corp., Tioga and C Sts., Phila., Pa., radar and electronic tube plant. **$1,000,000,** M. Ward Easby, Inc., 1201 Chestnut St., Phila., Pa., consult. engr.

▲ **Mass., Natick**—MANUFACTURING—Ford Motor Co., 856 Penobscot Bldg., Detroit, mfg. bldg., off Worcester Turnpike, **$8,000,000.**

Mass., Roxbury—PLANT—New England Provisions Co., Inc., 27 Fulton St., Boston, meat processing plant, Southampton St. **$750,000,** Henschen, Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., consult. engrs.

Neb., Omaha—PLANT—John Roth & Son, 5502 S. 43 St., packing house plant. **$900,000.** Willis Regier, Live Stock Exchange Bldg., consult. engr. and archt.

N. Y., New York—GARAGE—Pennstation Garage, Inc. (lessee), 50 W. 72 St., Zone 23, plans by Lester C. Tichy, 369 Lexington Ave., Zone 17, parking garage over southeast court of Pennsylvania Station and over south taxi ramp at Seventh Ave. for 923 automobiles. **$900,000.** Strobel Salzman, 55 W. 45 St., Zone 17, engr. CD 9/13.

N. C., Winston-Salem—LABORATORY—R. J. Reynolds Tobacco Co., Reynolds Bldg., plans by Schmidt, Garden & Erickson, 104 S. Michigan St., Chicago 3, Ill., laboratory. **$900,000.**

Okla., Anadarko—POWER PLANT—Western Electric Co-operative, Inc., Anadarko, electric power plant. **$800,000.** Laramore & Douglass, 79 E. Adams St., Chicago 4, Ill., consult. engrs.

▲ **Pa., Edgley**—PLANT—Philco Radio & Television Corp., C and Tioga Sts., Phila., plant expansion. Approx. **$1,000,000.** Jack S. Steele Co., 1416 Chestnut St., Phila., consult. engrs. CD 2/28.

Pa., Phila.—PLANT—Philco Radio & Television Corp., C and Tioga Sts., mfg. and storage bldg. Approx. **$500,000.** Thomas Wells, c/o owner, engr. CD 7/26/46.

▲ **Pa., Phila.**—PLANT—The Evening Bulletin, Filbert and Juniper Sts., newspaper publishing plant between 30 and 32 Sts., market St. north to Penna Blvd. **$5,000,000.**

▲ **Tenn., Memphis**—PARTS DEPOT, etc.—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., 240x420-ft., 100,800 sq. ft. parts depot and sales office bldg. Approx. **$1,000,000.**

▲ **Va., Richmond**—STEMMERY—Philip Morris & Co. Ltd., Inc., 10 S. 20 St., stemmery, Petersburg Pike. **$1,500,000.**

▲ **Ont., Merritton**—MILLS—Alliance Paper Mills, Merritton, expansion mills. **$2,000,000.** CD 10/30.

UNCLASSIFIED

Calif., Los Angeles—STREET LIGHTING SYSTEM—Bd. Supervs. Los Angeles Co., 501 Hall of Records, street lighting sys. in Harvey Way, North Long Beach, C. 1, 1382. **$109,400.** R. E. Shonerd, ch. mech. engr.

† **Calif., San Francisco**—DRY DOCK CAISSON—12th Naval District, P. Wks. Office, Federal Office Bldg., caisson for Dry Dock 2 at Naval Shipyard, NOY 23487. **$352,000.**

Idaho, American Falls—TRANSISSION LINE—Idaho Power Co., 1220 Idaho St., Boise, 17 mi. steel tower transmission line to Westvaco Chemical Co. plant, with radar fault locaters at the plant. **$280,000**

Kansas—RURAL DISTRIBUTION LINES—Lyon County Electric Co-operative, Emporia, 50 mi. rural distr. lines, headquarters facilities and sys. imprvs., in Lyon Co. **$135,000.**

Kansas—RURAL DISTRIBUTION LINES—Western Light & Telephone Co., Huron Bldg., Kansas City, Kan., 85 mi. rural distr. lines from Dodge City to Medicine Lodge. **$750,000.**

▲ **Md., Baltimore**—PIER—Western Maryland Ry. Co., E. C. Shreve, ch. engr., Standard Oil Bldg., Zone 2, pier, near McComas St., Port Covington, **$12,000,000.**

† **Mass., Ayer**—POWER SYSTEM—U. S. Eng., New England Div., Army Base, Boston, power sys. addn., Fort Devens.

Montana—RURAL DISTRIBUTION LINES—McCone County Electric Co-operative, Inc., Circle, 540 mi. rural distr. lines, sys. imprvs., McCone Co. **$800,000.**

Nebraska—RURAL DISTRIBUTION LINES—Consumers Public Power Dist., Columbus, 81 mi. rural distr. lines, Cedar, Dixon and Dakota Counties. **$250,000.** (Correction—location of project). CD 12/5 ,under Ontario.

N. C., Raleigh—RECREATION FACILITIES—City, W. H. Carper, mgr., Raleigh, bond election Feb. 3, recreation facilities. **$250,000.** CD 12/7.

† **Pa., Phila.**—PIER, etc.—Dpt. Navy Pub. Wks. Office, Phila. Naval Base, Phila., pier and wharves (repairs to fender sys.), NOY 23902. **$100,000.**

Texas—TELEPHONE LINES—Eastex Telephone Co-operative, Laneville, rural telephone service expansion, incl. pole lines storage and maintenance shops, etc., Rusk Co. **$624,000.**

Texas—TELEPHONE POLE LINE—Medina Rural Telephone Co., Medina, rural telephone pole line exten., equip. storage, Bandera Co. **$136,000.**

Texas—RURAL DISTRIBUTION LINES—North Plains Electric Co-operative, Perryton, 226 mi. rural distr. lines, sys. imprvs., Ochiltree Co. Approx. **$350,000.** J. S. Hudnal 1903 S. Robertson St., Tyler, consult. engr. CD 7/13.

Texas—TELEPHONE LINES—Texas Farmers Telephone Co., Belton, rural telephone service expansion, pole lines, maintenance shop, etc., Bell Co. **$401,000.**

▲ **Texas**—GAS LINES, etc.—Texas Illinois Natural Gas Pipe Line Co., 20 N. Wacker Dr., Chicago, Ill., 72 mi. gas pipe line from area of Alice Tim Wells Co. to San Diego area, Duval Co., **$7,500,000.**

Tex., Texarkana—PARKS, etc.—City, voted bonds, parks and playgrounds. **$150,000.** Homer A. Hunter, 4704 Greenville St., Dallas, consult. engr.

▲ **Virginia**—TRANSMISSION STATION, etc.—Appalachian Electric Power Co., 40 Franklin Rd. S.W., Roanoke high voltage transmission station, near Cloverdale, Botetourt Co. **$1,000,000.** Will spend $4,000,000 for expanding transmission facilities in next 2 years.

Wash., Raymond—HATCHERY, etc.—State Dpt. Fisheries, Smith Tower, Seattle, Zone 4, hatchery and rearing station on N. Nemah River, **$250,000;** reconstruct old Willapa hatchery bldg. and cold storage plant, etc., **$74,000.**

Ont., Kitchener—ELECTRICAL DISTRIBUTION—Public Utilities Comn., 191 King St. W., electrical distr. sys. exten. **$250,000.** CD 2/15/45.

Que., Drummondville—ARENA—Owner, c/o J. A. Savard, G. Dumais, secy. temoorary committee, artificial ice arena, Approx. **$400,000.**

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CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

Ind., Hammond—B.A. 1/3—Bd. Waterworks Trustee, G. O. Schokert, pres., City Hall, water mains, $300,000. Plans deposit $50, Leo Besozzi, 5217 Hohman Ave., engr.

Kan., Olathe—B.A. 1/3—City, Part I water treatment plant, Part II, water distr. sys. imprvs. Plans deposit $25. Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

† **N. J., Earle**—B.A. 1/3—P. Wks. Officer, Third Naval Dist., 90 Church St., New York 7, N. Y., well at Naval Ammunition Depot, NOY 23880, Spec. No. 26204.

La., Gramercy—B.A. 1/4—Village, water distr. sys. Plans deposit $7.50. Fromherz Engineers, 823½ Poydras St., New Orleans, engrs.

† **Montana**—B.A. 1/4—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver Colo., clearing part of Canyon Ferry reservoir site, Missouri River Basin Proj., Spec. 604-C-19. Extended date. L. N. McClellan, Bldg. 1 A, Denver Federal Center, Denver, Colo., ch. engr. CD 11/14.

† **Va., Quantico**—B.A. 1/4—U. S. Eng., First and Douglas St. N.W., Wash. 25, D. C., drilling Well 2; in vicinity of here. Eng. 49-080-51-51-(37).

La., Lafayette—B.A. 1/9—City, water treatment plant. Plans deposit $50. J. B. Mccrary Co., 22 Marietta St. Bldg., Atlanta, Ga., engr.

La., Gretna—B.A. 1/11—Jefferson Parish Waterworks Dist. 1, East Jefferson Parish, furnishing mechanical equip. and construct service pump. plant imprvs. Plans deposit $20. S. W. Applewhite, 424 Millandon St., New Orleans, Zone 18, engr.

Tex., Carthage—B.A. 1/15—City, drilling, developing deep water well, pump. station, Contrs. A and D, $60,000; Contr. C, 6- to 8-in. water lines, $60,000; Contr. B, steel, concrete ground storage tank, $36,000. Plans deposit $25 each. Wisenbaker, Fix & Assoc., 1415 N. Dixie St., Tyler, engrs. CD 9/18.

LOW BIDDERS

▲ **Calif., San Francisco**—Public Utilities Comn., City Hall, concrete lining, roof and control works at Sutro Reservoir, Spec. 536, from Granite Constr. Co., Box 900, Watsonville, **$1,019,935**. CD 11/15.

▲ **Mass., Springfield**—City, Water Dpt., City Hall, water supply filter sys. addn., W. Parish Filters, from Ley Constr. Co., 124 State St., **$1,087,845**. Bogert-Childs Engineering Assoc., 624 Madison Ave., New York, N. Y., engrs. CD 2/17.

SEWERS, WASTE DISPOSAL

BIDS ASKED

N. Y., Port Washington—B.A. 1/4—Bd. Sewer Comrs., Port Washington Sewer Dist., Main St., sewage disposal plant, intercepting sewer and water well. $965,000. CD 4/26.

Calif., Antioch—B.A. 1/8—City, City Hall, sanitary sewers, Approx. $60,000. Plans deposit $25. John S. Bates, 3134 Eton Ave., Berkeley, engr. CD 10/26.

Fla., Crestview—B.A. 1/8—City, sanitary sewer imprvs. Approx. $100,000. CD 9/1, under Water Supply.

Calif., Blythe—B.A. 1/9—City Council, City Hall, sewage treatment works and outfall sewer. $60,000. Plans deposit $10. Currie Eng. Co., Andreson Bldg., San Bernardino, engr. CD 12/5, under LB.

Calif., Martinez—B.A. 1/10—Mountain View Sanitary Dist., 1220 Palm Ave., sewers in Vine Hill District, Assessment District 7. Approx. $60,000. Plans deposit $10. Phil R. Jones, 2511 San Pablo Ave., San Pablo, engr.

CONTRACTS AWARDED

▲ **Ind., Columbus**—Bd. P. Wks., City Hall, Dec. 15, sewage treatment plant, from Ed. A. McCarthy & Son Co., 2305 Clifton Ave., Cincinnati, O., **$1,124,227**; interceptor sewers, from Santoucci Constr. Co., Skokie, Ill. **$397,497**. CD 11/22.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

January 5
Alabama

January 11
California

O., Athens—B.A. 1/5—S. O. Linzell, dir. P. Wks., Ohio Depts. Bldg., Columbus, footbridge over Hocking River at Ohio University.

† **Maryland**—B.A. 1/10—Bureau Pub. Roads, Dpt. Commerce, 1440 Columbia Pike, Arlington, Va.,

Anne Arundel Co.—2 rein. con. structures and approaches, 0.059 mi., 53,000 cu. yd. excav., 2,550 cu. yd. cement concrete, 135 tons reinforcing steel, 350 cu. yd. stone masonry, 4,000 lin. ft. treated timber piling. Proj. 1G2. Plans deposit $10.

N. Y., New York—B.A. 1/10—Dpt. P. Wks., Municipal Bldg., Zone 7, reconstruct Manhattan and Bronx approaches of Willis Avenue Bridge over Harlem River, Bronx and Manhattan Boros. Plans deposit $30. Extended date. CD 12/14.

New York—B.A. 1/26—Jones Beach State Parkway Auth., Belmont Lake State Park, Babylon,

Suffolk Co.—Contr. 3, superstructure of Captree State Parkway Bridge across Great South Bay, east of Babylon and superstructure of bascule bridge across State Boat Channel at Captree Island. Plans deposit $20. Hardesty & Hanover, 101 Park Ave., New York, Zone 17, engrs. CD 9/28/44.

New Jersey and Pennsylvania—B.A. 1/30—Delaware River Joint Toll Bridge Comn., 526 Broad St. Bank Bldg., Trenton, 8, N. J., Contr. 5, building construction; Contr. 6, plumbing; Contr. 7, heating and air conditioning; Contr. 8, electrical work and toll registering equipment, for 4 story, 50x131 ft., limestone faced administration office and toll collection facilities. Plans deposit $5 each contract. CD 11/2, under LB; adv. ENR 12/28.

LOW BIDDERS

▲ **Louisiana**—State Hy. Dpt., Baton Rouge, Dec. 13, soil cement base course, bit. surf. tr. (asph. cement) c. conc. 1.513 mi. East approach to Lake Charles Bridge Hy., State Rte. C 2109, Proj. 3-30-17, F. A. Proj. UI 35 (20), Calcasieu Parish, from W. R. Aldrich & Co., 2493 Baywood Ave., Baton Rouge, **$499,208**; cleaning, repainting Mississippi River Bridge (Baton Rouge) State Rte. C 1500, Proj. 7-101-08, East Baton Rouge and West Baton Rouge Parishes, from Courtney-Welsh-Brink & Co., Inc., 3543 Oakridge St., Houston, Tex., **$553,231**. CD 11/10 and 11/29.

CONTRACTS AWARDED

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. two 38 ft. wide, rein.-con. roadway deck slabs upon the superstructure steelwork to be constructed under Contr. 20, between south abutment, station 466 plus 48.16 and the north abutment, Station 534 plus 95.41 etc. in connection with constr. Passaic River Bridge, Newark and Kearny, Essex and Hudson Counties, to Johnson, Drake & Piper, 86 Trinity Pl., New York, N. Y., **$1,224,450**. Bids 12/5, awarded 12/19. CD 12/8, under LB.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

January 4
Nevada

January 5
Alabama

January 9
Maryland

January 10
Louisiana

January 16
California

LOW BIDDERS

▲ **Illinois**—State Div. Hys., Springfield, Dec. 15, c. conc. 7.58 mi. U. S. 40, Clark Co., from Bushman Constr. Co., 4638 Mill Creek Parkway, Kansas City, Mo., **$1,407,294*****bit. resurf. 8144 mi. U. S. Rte. 24, Tazewell Co., from R. A. Cullinan & Son, Tremont, **$200,724*****c. conc. wid'n. 9.1 mi. Ill. Rte. 8, Peoria Co., from S. M. H. Constr. Co., 1500 N. Adams St., Peoria, **$150,857*****bit. resurf. 8.92 mi. on Ill. Rte. 8, Peoria Co., from Seneca Petroleum Co., 439 W. 33 St., Chicago, Zone 16, **$196,415***** c. conc. 0.31 mi. Ill. Rte. 4, Lincoln, Logan Co., from J-P Constr. Co., Gregory Bldg., Chicago Heights, **$74,525**. CD 11/30.

▲ **Maryland**—State Rds. Comn., Baltimore, Zone 2, Dec. 12, c. conc. 3.229 mi. State Route 26; east of Eldersburg, northwesterly toward Frederick, Carroll Co., from Camden Constr. Co., Inc., 1301 Towson St., Baltimore **$504,004**; dual highway, 1 full cloverleaf, 2 rein.-con. culverts and 3 channelized intersections 3.15 mi. Contr. AA-368-13-315, Anne Arundel Co., from Nello L. Teer Co., Durham, N. C. **$1,175,834**. CD 11/21.

CONTRACTS AWARDED

▲ **New Jersey**—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. 59, preparation for subgrade, roadway drainage, turnpike shoulder, cross road pavement, sidewalks, curbs, guard rails, top soil and seeding, etc. in connection with completion of N. J. Turnpike Sect. 1, between Deepwater and Woodbury, Salem and Gloucester Counties, asph. pavement, to S. J. Groves & Sons, Inc., State Hy. 35, Woodbridge, **$6,314,436**. Bids 10/17, awarded 12/19. CD 10/30, under LB.

▲ **New Mexico**—State Hy. Dpt., Santa Fe, grading, minor drainage structures, three multiple concrete box culverts each over 20 ft. clear span, one treated timber bridge consisting of three 15 ft. spans, asph. processed base, bit. top course surf. and misc. constr. 4.832 mi. U. S. 66 from Gallup east, FAP Nos. FI-27 (7) and FI-141 (6), McKinley Co., to Henry Thygesen & Co., Box 876, Albuquerque, **$458,909***** grading, 3 multiple concrete box culverts each over 20 ft. clear span, asph. processed base, hot plant bit. surf. course, sealing with asph. and stone chips and misc. constr. 7.954 mi. U. S. 66 between Albuquerque and Moriarty, FAP Ni. FI-151 (7), Bernalillo Co., and asph. processed base, single pentration bit surf. tr. etc. 19.4 mi. S. R. 360 between U. S. 62 and 180 and S. R. 83, northeast of Carlsbad, Eddy Co., to Skousen-Hise Contr. Co., 207 Springer Bldg., Albuquerque, **$1,594,388** and **$135,357** respectively***grading, one 176.50 ft. treated timber bridge, asph. processed base, sealing with asph. and stone chips and misc. constr. 14.486 mi. S. R. 47 between Belen and La Joya, FAP No. S-151 (2), Socorro

Co., to Floyd Haake, 1201 Sierra Vista, Santa Fe, **$232,397.** Grand total $2,421,051. Bids 12/15. CD 12/6.

▲ **New York**—Bureau Contracts & Accounts, Albany, reconstruct 5.27 mi. of Route 9N between Keene and Jay, Essex Co. to Louis Mayersohn, 36 State St., Albany, **$719,776;** reconstruct Route 25B in Mineola and Williston Park, 1 mi. of Hillside Ave., Nassau Co., to Del Balso Constr. Corp., 500 Zerega Ave., Bronx 61, **$556,117.** Bids 11/14. CD 11/17, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Pennsylvania**—B.A. On Or About 1/3—U. S. Eng., 24 St. and Maryland Ave. P. O. Box 1715, Baltimore 3, Md., channel imprv. projects, Codorus Creek, York, Serial Nos. CIVENG 18-020-51-6 and 51-7.

† **Pennsylvania**—B.A. 1/3—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., weir replacement, Serial No. CIVENG 18-020-51-6; channel restoration, Serial No. CIVENG 18-020-51-7, both in Codorus Creek, York, York Co. CD 11/28.

† **Nebraska**—B.A. 1/4—Bureau Reclamation, Dpt. Interior, Trenton, riprap rock and crushed rock or gravel blanket material for Trenton Dam, Frenchman-Cambridge Div., Missouri River Basin Proj. Spec. No. DC-3259.

† **Washington**—B.A. 1/4—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Othello, 2 gate frames, for headworks, Potholes East Canal, Columbia Basin Proj., Spec. DS-3542. L. N. McClellan, ch. engr.

† **Washington**—B.A. 1/4—Bureau Reclamotion, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Coulee Dam, 16,000 bbl. portland cement in paper sacks and in bulk, construction work in vicinity of Grand Coulee Dam, Columbia Basin Proj., Spec. DS-3264. L. N. McClellan, ch. engr.

† **Oregon**—B.A. 1/11—U. S. Eng., Pittock Block, Portland, clearing Areas K and L (380 acres) in Detroit Dam Reservoir, North Santiam River. CD 11/28.

AIRPORTS

BIDS ASKED

† **Fla., Cocoa**—BUILDINGS—B.A. About 1/5—U. S. Eng., P. O. Box 4970 Jacksonville, renovating 4 buildings at Patrick Air Force Base, Long Range Proving Ground, Brevard Co., about 16 mi. from here.

LOW BIDDERS

▲† **Alaska**—BARRACKS—U. S. Eng., (APO 942, c/o PM. Seattle, Wash.) Anchorage, Dec. 13, nine 200-man barracks at Eielson Air Force Base and one 500-man and six 200-man barracks at Ladd Air Force Base, Inv. No. S95-507-51-26, from Peter Kiewit Sons and Morrison-Knudsen Co., Inc., 1300 Aloha St., Seattle, Wash., **$10,288,413.** Est. $8,436,830. CD 11/24.

CONTRACTS AWARDED

▲† **Okla., Oklahoma City**—FIELD IMPRVS.—U. S. Eng., P.O. Box 61, Tulsa, imprv. Tinker Field, Job No. 7 to E. B. Bush Constr. Co., 3500 W. Reno St., Zone 4, **$1,624,000.** Est. $1,847,000. Awarded 12/6 CD 11/10.

▲† **Alaska**—AGGREGATE—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, supplying aggregate, central-mixed concrete and cement for construction projects at Ladd and Eielson Air Force Bases, Inv. No. S95-507-51-27, to Selid Constr. Co., Fairbanks, **$1,000,000.** Bids 11/16. CD 11/22, under LB.

▲† **Alaska, Eielson Air Force Base**—HEATING and POWER PLANT—U. S. Eng (APO 942, c/o PM, Seattle, Wash), Anchorage, two-boiler and one turbine-generator central heating and power plant, Inv. No. S95-507-51-22, to Peter Kiewit Sons Co. and Morrison-Knudsen Co., Inc., 1300 Aloha St., Seattle, Wash., **$4,224,445.** Est. $4,716,150. Bids 11/29. CD 12/6, under LB.

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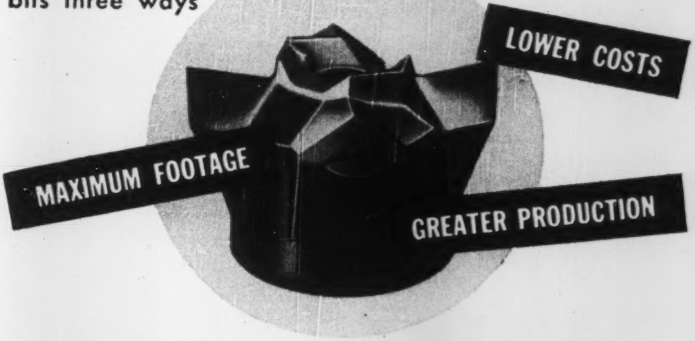

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PUBLIC BUILDINGS

BIDS ASKED

Va., Staunton—SCHOOL—B.A. 1/2—At office School Supt., Staunton, Southside School. $300,000. Plans deposit $50. T. J. Collins & Son, Staunton, archts. CD 10/27.

† **D. C., Wash.**—DOMICILIARY—B.A. After 1/2—U. S. Eng., First and Douglas Sts. N.W., Wash., 25, D. C., domiciliary bldg. incl. site imprvs. and outside utilities at U. S. Soldiers' Home, Serial No. CIVENG 49-080-51-34. CD 4/11.

Neb., Lincoln—MEAT LABORATORY—B.A. 1/3—University of Nebraska, College of Agriculture Dept., 12 and R Sts., meat laboratory bldg. incl. cold storage, slaughter dept., laboratories, office, etc. $250,000. Meginnis & Schaumberg, Federal Securities Bldg., archts. CD 10/17/49.

† **N. J., Dover**—DEVELOPMENT and TEST FACILITIES—B.A. 1/3—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., development and test facilities, Proj. Loki, at Picatinny Arsenal, No. Eng-30-075-51-355. $150,000-$250,000. CD 8/13/48.

N. Y., Potsdam—HEALTH AND PHYSICAL EDUCATION—B.A. 1/3—New York State Dormitory Auth., Albany, health and physical educ. bldg. Plans deposit $30. CD 7/6/45.

Pa., State College—CHEMISTRY STORAGE—B.A. 1/3—General State Auth., 18 and Herr Sts., Harrisburg, general contract, plumbing, sprinkler sys., electrical work for chemistry storage bldg. $98,400. Plans deposit $7.50 each: general contract, heating, plumbing, electrical work, elevator for chemistry laboratory bldg. and addn. to Pond (chemistry) laboratory. $900,000. Plans deposit $15 each, at Pennsylvania State College. C. J. Lappley, Riverview Manor, Harrisburg, archt. A. F. Jones, c/o owner, ch. engr. CD 12/20/49.

▲ **Conn., New Haven**—SCHOOL—B.A. 1/4—City Bd. Educ., City Hall, Winchester School, Gregory St. $1,000,000. Plans deposit $50. Leo F. Caproni, 1221 Chapel St., archt. CD 8/23.

Minn., Robbinsdale—SCHOOL—B.A. 1/4—Bd. Educ., A. G. Bossert, clk., 1 and 2 story school, in Crystal Village. $500,000. Plans deposit $20. Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 6/2.

† **North Dakota**—WAREHOUSES—B.A. 1/4—U. S. Eng., Fort Lincoln, Box 300, Bismarck, addnl. warehouses, McLean Co., Garrison Dam and Reservoir, Riverdale. Serial No. CIVENG 32-015-51-22. CD 6/1/44.

▲ **Pa., Chester**—HOUSING—B.A. 1/4—Chester Municipal Auth., Wm. Penn Village, Chester, Pinegrove Housing. $1,100,000. G. Morris Whiteside 2nd, Sharon Hill, Pa., archts. CD 10/25.

† **Wyoming**—GARAGE, etc.—B.A. 1/4—Bureau Reclamation, Dpt. Interior, P. O. Box 280, Reclamation Center, Casper, erecting prefabricated garage and machine shop at Reclamation Center, approx. 3½ miles west of Casper, Kortes Unit, Missouri River Basin Proj. Spec. 7030-164; adv. ENR 12/28.

Ark., Jonesboro—SCHOOL—B.A. 1/5—Jonesboro School Bd., Jonesboro school. Plans deposit $25. Elmer A. Stuck, Jonesboro, archt.

Calif., Long Beach—SCHOOL—B.A. 1/5—City Bd. Educ., 715 Locust Ave., Los Cerritos Elementary School addns. $300,000. Extended date. Hugh Gibbs, 441 E. 1 St., Long Beach, archt. CD 12/15.

Calif., Los Angeles—OFFICE, etc.—B.A. 1/5—Bd. Educ., 1425 S. San Pedro St., 2 story, rein.-con. office and garage addn. $475,000. A. C. Zimmerman, 2439 Hyperion Ave., Los Angeles, archts. CD 1/19.

Minn., Willmar—SCHOOL—B.A. 1/5—Bd. Educ., Alice C. Hedin, clk., 1 story 84x284 ft. school; 1 story, 46x250 ft. school addn.; 2 story, 114x146 ft. high school addn. $725,000. Plans deposit $15. Magney-Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. Frost & Lofstrom, Willmar, assoc. archts. CD 7/14.

Calif., Los Angeles—REPAIR SHOP—B.A. 1/9—Bd. Supervs. Los Angeles Co., 501 Hall of Records, vehicle repair shop. $122,500. Plans deposit $25. R. E. Shonerd, co. mech. engr.

Tex., Cisco—HOUSING—B.A. 1/9—Cisco Housing Auth., Cisco, 50 unit housing for 26 buildings, $376,000. Plans deposit $25. Bentley, Broad & Nelson, 228 Reserve Loan Life Bldg., Dallas, engrs. and archts. CD 11/13.

Tex., San Antonio—SCHOOL—B.A. 1/9—San Antonio Independent School Dist., Lavaca and Matagorda Sts., 20 room school, Babcock Rd., west of Thomas Jefferson School. $325,000. Plans deposit $25. Phelps & De Wees & Simmons, 1500 Majestic Bldg., archts. W. E. Simpson Co., 945 Milam Bldg. and Gerard M. Baker, 1501 Majestic Bldg., engrs. CD 11/20.

LOW BIDDERS

▲ **Ala., Birmingham**—HOUSING—Birmingham Housing Auth., 600 N. 24 St., Dec. 15, Proj. Ala. 1-16, 500 housing units, from G. A. Paul Constr. Co., 14 Bonita Dr., **$4,034,902.** CD 11/21.

▲ **Ala., Gadsden**—HOUSING—Gadsden Housing Auth., Dec. 14, housing, Ala. 49-2, from J. F. Holley, 905 6 Ave. N., Birmingham, **$1,289,000**; Ala. 49-3, from Sullivan, Long & Hagerty, Bessemer, **$1,824,000.** CD 12/7.

▲ **Ala., Selma**—HOUSING—Selma Housing Auth., Selma, Dec. 15, Proj. Ala-82, 216 housing units, from Jones & Hardy, Montevallo, **$1,615,615.** CD 11/13.

▲ **Ark., Little Rock**—HOUSING—Little Rock Housing Auth., 2800 Battery St., general contract 200-family East End Housing for Negroes, from Baldwin Co., Wallace Bldg., **$1,475,067.** CD 11/24.

▲ **California**—GENERATOR—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Dec. 12, install generators at Folsom Power Plant, Central Valley Proj., Spec. DC-3204, from Westinghouse Electric Corp., G & E Bldg., Denver, Colo., **$2,525,000.** CD 11/14.

▲ **Calif., Fontana** — SCHOOL — Chaffey Union High School Dist., Ontario, Dec. 13, high school, from Stanton-Reed Co., 816 W. 5 St., Los Angeles, **$1,479,512.** CD 11/29.

▲ **Ga., Columbus**—HOUSING—Columbus Housing Auth., c/o L. D. Raines & E. Oven Smith, archts., 2443 Wynnton Rd., Columbus, Dec. 15, Luther C. Wilson Housing Proj. GA-46, from Williams Constr. Co., 1032 13 St., **$2,520,000.** CD 11/20.

▲ **Ga., East Point**—HOUSING—East Point Housing Auth., c/o Abreu & Robeson, archts., 22 Marietta St. Bldg., Atlanta, Dec. 14, Projs. GA 78-1 and GA 78-2, 200 housing units, GA 78-1, from Gilbert Beers, 489 Bishop St. N. W., Atlanta, **$818,000**; GA 78-2, from Beers Constr. Co., 70 Ellis St. N. E., Atlanta, **$898,000.** CD 11/20.

▲ **Ga., Gainesville**—HOUSING—Gainesville Housing Auth., Gainesville, Dec. 14, 200 housing units, GA 59-1 and GA 49-2, from T. C. Bateson Constr. Co., Irwin-Keasler Bldg., Dallas, Tex., **$2,417,600.** CD 11/24.

▲ **Ga., Moultrie**—HOUSING—Moultrie Housing Auth., Moultrie, Dec. 14, housing units, from Byck-Worrell Constr. Co., 318 E. Bay St., Savannah, **$1,079,847.** CD 11/20.

▲ **Md., Snow Hill**—SCHOOL—Worcester Co. Bd. Educ., Dec. 12, Consolidated High School, from Charles E. Brohawn & Bro., Cambridge, **$1,806,991.** CD 11/24.

▲ **Wash., Everett**—HOUSING—Everett Housing Auth., Everett, Dec. 15, 150 housing units in Baker Heights Addn., from Mowat Bros. Constr. Co., 2833 Eastlake Ave., Seattle, **$1,337,000.** CD 11/16.

▲ **Wash., Seattle**—SCHOOL—School Dist. 1, 815 4 Ave. N., rejected bids Dec. 12, David T. Denney Junior High School buildings in southwest part of city. L. B. Over **$2,000,000.** Est. $1,500,000. CD 12/12.

▲† **Alaska, Fort Richardson**—QUARTERS—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Dec. 14, 35 eight-family quarters bldg., Inv. No. 51-31, from Patti MacDonald, Constr. Co., 1340 Admiral Blvd., Kansas City, Mo., **$5,089,542.** Est. 5,167,119. CD 11/24.

CONTRACTS AWARDED

▲ **Calif., San Francisco** — MEDICAL SCIENCES — Bd. Regents, University of California, general contract 13 story and partial 14 story, rein.-con., structural steel medical sciences bldg., Incremont No. 1, to Clinton Constr. Co., 923 Folsom St., **$3,634,000.** Bids 11/22. CD 11/28, under LB.

▲ **Minn., Waseca**—SCHOOL—University of Minnesota, R. S. Callaway, purch. agt., 323 Admin. Bldg., Main Campus, Minneapolis, general contract 505x535 ft. School of Agriculture, to G. E. Carlstrom Constr. Co., Mankato, **$1,076,000.** CD 12/6, under LB.

▲ **S. C., Columbia**—OFFICE—State Hy. Dpt., Calhoun Office Bldg., office, to M. B. Kahn Constr. Co., Blossom St. **$1,303,000.** Bids 12/12. CD 11/9.

▲ **Wash., Seattle**—PENSTOCK LINERS—City, County-City Bldg., Zone 4, plate steel penstock liners for 4 units at City Lights Ross power plant, to Consolidated Western Steel Corp., 5700 S. Eastern Ave., Los Angeles, Calif., **$1,008,653.** Bids 12/6, awarded 12/13. CD 12/14, under LB.

▲† **Alaska, Fort Richardson**—WAREHOUSES—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, two 200x1,000 ft. permanent storage warehouses in General Depot area, Inv. No. S95-507-51-5, to Morrison-Knudsen Co., Inc. and Peter Kiewit Sons Co., 1300 Aloha St., Seattle, Wash., **$3,582,732.** Bids 11/7. CD 11/14, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Tex., Levelland—HOTEL—B.A. 1/6—Hotel Levelland, Inc., Levelland, 4 story hotel. $380,000. Alvin G. Cearley & Joseph H. Seane, 1404 Houston St., archts.

LOW BIDDERS

▲ **Ill., Joliet**—APARTMENT—Black Road Estates, 506 Mack St., project abandoned, 300 unit apartment, **$2,500,000.** Levon Seron, 81 N. Chicago Ave., archt. CD 3/16.

CONTRACTS AWARDED

▲ **N. J., Cape May**—RESIDENTIAL DEVELOPMENT—Collingswood Constr. Corp., 1080 Maple Ave., Merchantville, residential development, separate contracts, **$1,000,000.** Dante J. D'Anastasio, 1815 Federal St., Camden, archts.

▲ **Pa., Secane**—RESIDENTIAL DEVELOPMENT—Warner-West Corp., 7052 Garrett Rd., Upper Darby, residential development, Westbrook Park, to Fairlamb Constr. Co., 7052 Garrett Rd., Upper Darby, **$4,900,000.** Albert McDowell, In Charge of Construction, for owner, Damon & Foster, Sharon Hill, Pa., engrs.

INDUSTRIAL BUILDINGS

BIDS ASKED

▲ **Tex., Dallas**—FACTORY—Bids Asked—The Simmons Co., 900 Blk. S. Lamar St., 252,000 sq. ft. factory for mfg. bedding and allied products. $1,000,000. CD 12/18.

▲ **Tex., Earth**—POWER PLANT, etc.—Bids Asked—Southwestern Public Service Co., Mercantile Bank Bldg., Dallas, electric power plant, $6,000,000; service shop, $90,000. CD 12/18.

SOON LETS CONTRACT

▲ **Minn., Minneapolis**—PARKING GARAGE—At office Larson & McLaren, archts., 1901 Foshay Tower, soon lets contract parking garage, 9 St. and LaSalle Ave., for Downtown Auto Park, Inc., 503 Syndicate Bldg. $1,000,000.

▲ **Tex., Houston**—STORAGE GARAGE—National Bank of Commerce, Gulf Bldg., soon lets contract storage garage. $1,000,000. J. Russ Baty, Lamar Hotel Annex, archt. Robert J. Cummins & Reginald F. Taylor, Bankers Mortgage Bldg., engrs. CD 12/18.

CONTRACTS AWARDED

▲ **Mo., Springfield**—PLANT—Lily-Tulip Cup Corp., 15 Ave., College Point, N. Y., mfg. plant. Owner builds. **$2,000,000.**

▲ **N. C., Hendersonville**—PLANT—Belding, Hemingway, Inc., 1407 Broadway, New York, N. Y., textile mfg. plant, to Daniel Constr. Co., 429 N. Main St., Greenville, S. C., Approx. **$1,500,000.** McPherson & Co., 408 S. Main St., Greenville, S. C., engrs. CD 12/14.

▲ **Pa., Phila.**—WAREHOUSE—Frankford Grocery Co., Inc., Penn and Unity Sts., warehouse, to Barclay White & Co., 22 N. 36 St., **$1,500,000.** Robert Montgomery Brown, 1728 Spruce St., archt. CD 4/24/47.

▲ **Tex., Denison**—REFINERY—Conway Oil Co., Denison, vegetable oil refinery plant, to Cowdin Bros., 411 S. Haskell St., Dallas. Approx. **$1,000,000.** CD 12/19.

▲ **Wis., Green Bay**—POWER PLANT—Wisconsin Public Service Corp., Berlin Bldg., superstructure for power plant addn., to C. R. Meyer & Sons Co., 50 State St., Oshkosh. Est. **$1,500,000** for bldg., **$6,500,000** for equipment. CD 6/30/49.

UNCLASSIFIED

BIDS ASKED

▲ **Texas**—COMPRESSOR STATIONS—Bids Asked—Texas-Illinois Natural Gas Pipe Line Co., 20 N. Wacker Dr., Chicago, Ill., compressor station near Tilden, McMullen Co., $750,000; compressor station, near George West, Live Oak Co., $650,000. CD 12/13.

CONTRACTS AWARDED

▲ **Ga., Savannah**—WHARF—Georgia Port Auth., Savannah Q. M. Depot, Savannah, concrete wharf with bulkheads, to Espy Paving & Constr. Co., 108 E. Bay St., **$1,791,639.** Bids 12/14. CD 11/20.

(Proposal Advertisements see pp. 58 to 60)

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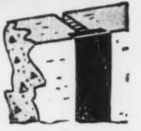
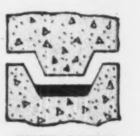


VERTICAL JOINTS



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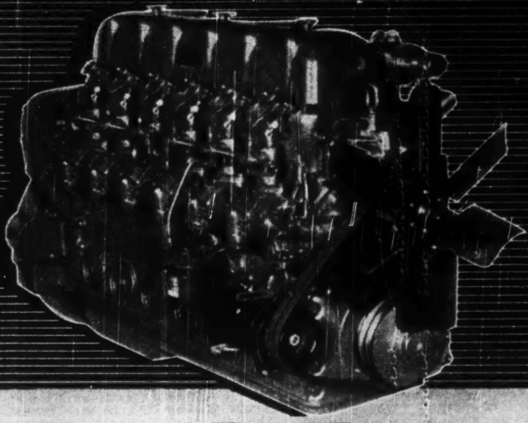

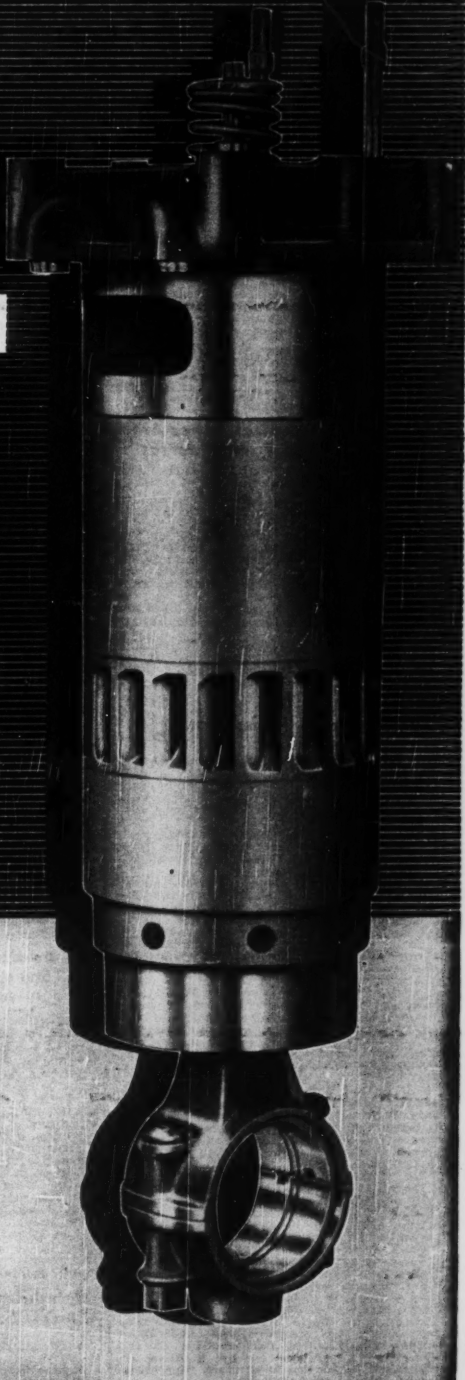

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P&H DIESEL DIVISION

HARNISCHFEGER
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PORT WASHINGTON P&H WISCONSIN, U. S. A.

OFFICIAL PROPOSALS

Bids: January 21, 1951 (242)

Fence Along Industrial Ave. South of Malcolm Ave., Teterboro Airport, N. J.

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—115

Sealed proposals for a Fence Along Industrial Avenue South of Malcolm Avenue at Teterboro Airport, Teterboro, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11 A. M. Friday, January 12, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, December 28, 1950.

Bids: January 21, 1951 (241)

Fence Around Control Tower Area, Newark Airport, New Jersey

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—116

Sealed proposals for New Fence Around Control Tower Area, at Newark Airport, Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11 A. M. Friday, January 12, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, December 28, 1950.

Bids: January 15, 1951 (240)

Well and Pump House

CITY OF LONG BEACH, N. Y.

1. Sealed Proposals for the construction of the herein described Contracts I and II for construction of a well and pump house in the City of Long Beach, New York, will be received by the City Council until 2:30 o'clock, P.M., E.S.T., January 15, 1951, in the City Manager's Office, City Hall, Long Beach, New York, and there publicly opened and read immediately thereafter.
2. The work will consist of providing all labor, materials, equipment and incidentals required for the construction of the following:
3. Plans, Specifications, bidding and contract documents may be examined at the Office of the Consulting Engineers, Alexander Potter Associates, 50 Church St., New York, N. Y., and at the Office of the City Engineer at City Hall, Long Beach, N. Y. and obtained from the latter upon the following deposits per set:

CONTRACT I—Developing and Constructing a Water Supply Well, etc., $15.00.
CONTRACT II—Pump House and Piping, etc., $15.00.

Full refund will be made to actual bidders for return of one (1) set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty percent (50%) of the deposit.

4. All proposals must be on the form contained in the specifications as furnished by the City.
5. All bids must be accompanied by a Certified Check in the amount of Ten (10) percent of the amount of the Bid, made payable to the City Treasurer, City of Long Beach. Said checks will be returned to all, except the three (3) lowest bidders, not later than ten (10) days after opening of bids.

The successful bidder in each of the several contracts will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon the payment of all persons supplying labor and furnishing materials on the construction of the work.

7. No bidder may withdraw his bid within thirty (30) days after closing date for receipt of bids.
8. The City Council reserves the right to reject any or all bids and to waive any informality in the Bid, and to accept that proposal which in its judgment best serves the interests of the City.

CTY OF LONG BEACH, N. Y.
By: Maurice J. Fleischman
City Manager
Dated: Long Beach, N. Y.
December 18, 1950.

Bids: December 28, 1950 (245)

Repairs to Outshore End of Pier Columbia Street Pier Brooklyn, N. Y.

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—91

Sealed proposals for Repairs to Outshore End of Pier, Columbia Street Pier, Foot of Columbia Street, Brooklyn, N. Y., will be received at the office of the Dept. of Purchase & Special Services, of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11:00 A. M. January 11, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Dept. of Purchase & Special Services, and copies will be furnished upon deposit of $10.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, December 28, 1950.

Bids: January 11, 1951 (244)

Catwalks and Work Platforms for Side Expansion Gratings, George Washington Bridge

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—118

Sealed proposals for Catwalks and Work Platforms for Side Span Expansion Gratings at the George Washington Bridge will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11:00 A. M., Thursday, January 11, 1951, at which time and place proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, December 28, 1950.

Bids: January 30, 1951 (238)

Additions and Alterations Sewage Treatment Plant

NORWALK, CONNECTICUT
CONTRACT 2

Sealed bids for constructing Sewage Treatment Plant improvements, Contract 2, will be received at office of the City Clerk in City Hall, South Norwalk, Conn., until 8:00 p.m., Eastern Standard Time on January 30, 1951.

Work includes new construction: new equipment; and alterations to existing buildings, structures, and equipment throughout the 11.25-mgd. plant.

Drawings and documents may be examined and obtained at above office and office of Metcalf & Eddy, Engineers, 1300 Statler Bldg., Boston, Mass., $25 deposit. Bid security, $35,000 certified check; successful bidder to furnish 100% performance bond.

Department of Public Works
Norwalk, Conneticut

Bids: January 30, 1951 (237)

Rehabilitation of Sedimentation Tanks, Sewage Treatment Plant

NORWALK, CONN.
CONTRACT 1

Sealed bids for rehabilitating two sewage sedimentation tanks will be received at office of the City Clerk in City Hall, South Norwalk, Conn., until 8:00 p. m. Eastern Standard Time on Tuesday, January 30, 1951.

Work includes rebuilding sludge collecting mechanisms, replacing sludge collector drive shelters, steel inlet wells, influent pipe supports and steel effluent weir, resurfacing the tank floors, and repairing concrete surfaces.

Drawings and documents may be examined and obtained at above office and office of Metcalf & Eddy, Engineers, 1300 Statler Bldg., Boston, Mass.; $10 deposit.

Bids security $1,500 certified check. Successful bidder must furnish 100% performance bond.

Department of Public Works
Norwalk, Connecticut

Bids: January 11, 1951 (243)

Furnishing and Installing Woven Wire Guards in Various Buildings at La Guardia Airport

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—117

Sealed proposals for furnishing and installing woven wire guards in various buildings at La Guardia Airport will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11 A. M., Thursday, January 11, 1951, at which time and place proopsals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, December 28, 1950.

Bids: January 16, 1951 (239)

Water Works System

Sealed proposals for the construction of a water works system and all appurtenances thereto will be received by the City of Hallandale, Broward County, Florida, at the office of the City Clerk until 2:00 P.M., January 16, 1951, at which time and place all bids will be publicly opened and read aloud. No bids will be received after the time and date specified.

The work shall be constructed in accordance with the Plans, Specifications and Contract Documents, which will be available for inspection at the office of the City Clerk, City Hall, Hallandale, Florida, and at the plan rooms of the following:

F. W. Dodge Corp., Jacksonville, Florida
Tampa Builders Exchange, Tampa, Florida
Miami Builders Exchange, Miami, Florida
The Dixie Contractors, Atlanta, Georgia

Plans, Specifications and Contract Documents may be obtained from the office of Briley-Wild Associates, Consulting Engineers, P.O. Box 3052, Daytona Beach, Florida, upon the deposit of fifty dollars ($50.00) for each set; twenty-five dollars ($25.00) of this deposit will be refunded upon return of the set undamaged within thirty (30) days after the opening of bids.

Bids will be received for the project in four parts, said four parts being as follows:

Part I—Water Distribution System
Part II—Elevated Tank and Tower
Part III—Wells and Appurtenances
Part IV—Water Treatment Plant

and the award or awards, if award is made, will be made by the Owner for any or all parts, entirely at his option. No bidder may withdraw his bid for a period of sixty (60) days after the time set for the opening of bids. Bids must be accompanied by a certified check or a bid bond drawn in favor of the City of Hallandale, Florida, in the amount of five percent (5%) of the total amount of the bid.

The City of Hallandale, Florida reserves the right to waive informalities in any bid and to reject any and all bids.

City of Hallandale
Broward County, Florida
By Foster H. Ingalls
Mayor
December 15, 1950

(Continued on page 59)

OFFICIAL PROPOSALS

(Continued from page 58)

OFFICIAL PROPOSALS

Bids: January 10, 1951 (235)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law and the Canal Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, January 10, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: **Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.**

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1 G. L. Nickerson Dist. Engr., 353 Broadway, Albany, N. Y.						
Saratoga	M-51-1	Waterford Dry Dock (Dredge No. 4)		Removing Existing Diesel Engine & Placing with Generators & Electric Motor	$275 Plans $2	$5,000
Warren	FARC51-1	Sandy Hill-Glens Falls, S. H. 656 Project No. U391(7)	0.59	9" Cem. Conc. Pavt. 44' Wide = 0.44 mi. Misc. Work = 0.15 mi. 43.32' Corrug. Plate Arch	$13,000 Plans $10	$235,000
DISTRICT No. 9 F. W. Donovan, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.						
Delaware	B. W. S. 2, 2D, 2E, 2ET	New York City Board of Water Supply Pepacton Reservoir Roads 2, 2D, 2E & 2ET (Replacing Parts of S. H. 8320, 8325)	8.75	Bit. Mac. Pen. Method, Type 1 = 7.88 mi.; Graded Gravel Top Course 0.47 mi. R. O. B. Gravel Fdtn. Course = 0.40 mi.	$110,000 Plans $25	$2,016,000
DISTRICT No. 10 J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.						
Nassau and Queens	R. C. 51-2	Jericho Turnpike, Pts. 1 & 2, SH 1831 & SH 1940 Massapequa-Glen Cove, SH 9017 North Hempstead Turnpike, SH 9018 Hempstead-Farmingdale, Pt. 3, SH 9055	3.36	White Traffic Line Marker	$350 Plans $10	$6,500
Queens	FA GCP51-1	Grand Central Parkway Extension (Horace Harding Blvd. to Subway Yard Lead Bridge) Proj. U741(19)&U658(19)	2.08 (Pkwy) 2.49 (Access)	8" Cem. Conc. Pavt. 2 at 36" wide & var. = 1.86 Mi. Improve Masonry on H. H. Blvd Br. Pedestrian Overpass Sp. Steel Beam 159' Total 66'-0-½" Sp. Conc. Arch (Cem. Conc. Pavt. on Access = 2.31 Mi.) (Sheet Asp. Pavt. on Access = 0.18 Mi.)	$150,000 Plans $100	$2,618,000
Suffolk & Nassau	N. S. P. 51-1 S.S.P.51-1	Northern State Parkway Southern State Parkway	8.71	Chain Link Fence and Miscellaneous Work	$5,000 Plans $15	$92,000
Suffolk	Cap.S.P.51-1	Captree State Parkway (Southern St. Pkwy. to Montauk Hy.) Cont. No. 2	2.53 (Pkwy) 2.86 (Access)	8" Cem. Conc. Pavt. 2 at 24' Wide (Access RDS. 8" Conc. 1.81 mi.; Asp. Conc. 0.95 mi.; Earth Treated 0.10 mi.) Hy. Sep. 89'-10⅞" Rig. Frame Hy. Sep 2 Sp. Rig. Frame 68'-9⅜" Each Hy. Sep. 72' 2¾" Rig. Frame RR. Sep. 3 Sp. Rig. Frame 199'-1¾" Total	$100,000 Plans $50	$1,827,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, and the Canal Law as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: January 10, 1950 (213)

Intercepter—Sec. A

STATE OF RHODE ISLAND AND
PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES

NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing TAFT ST.—PLEASANT ST. BRANCH INTERCEPTER, SEC. A., in Pawtucket, Rhode Island, will be received at office of State Purchasing Agent, State House, Providence until 10:00 a.m., Eastern Standard Time on January 10, 1951 and publicly opened and read at that time.

Project involves 680 ft. of inverted siphon, including 500 ft. of subaqueous work in Seekonk River. Inverted siphon consists of one line of 48-in., and one line of 30-in. precast, concrete pipe, and one line of 16-in. cast-iron pipe, all laid in same trench, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, State Office Building, or Metcalf & Eddy, Engineers, 1300 Statler building, Boston, Massachusetts, weekdays except Saturdays and holidays, 8:30 a.m. to 4:30 p.m., and may be obtained from office of State Purchasing Agent on $25 deposit.

Bid Security $20,000 certified check, bid bond, or cash, performance bond 100 percent.

Prevailing wage rates and public Work labor laws applicable.

FRANKLYN A. ADAMS
State Purchasing Agent

OFFICIAL PROPOSALS

Bids: January 10, 1950 (233)

Sewage Treatment Works

Sealed proposals for furnishing all plant, labor and materials for the construction of a new Sewage Treatment Works for the Borough of Lititz, Lancaster County, Pennsylvania, will be received by the Secretary of the Lititz Sewer Authority at the Authority office, No. 9 South Broad Street, Lititz, Pennsylvania, until 11:00 o'clock, Eastern Standard Time on Wednesday, January 10, 1951, at which time they will be publicly opened and read aloud.

The work will be divided into four contracts as follows:

Contract No. 4—Structural Work.
Contract No. 5—Mechanical Work.
Contract No. 6—Electrical Work.
Contract No. 7—Heating and Ventilating Work.

The work will be awarded singly under each contract or under Contracts No. 4 and 5 in combination as deemed to be in the best interests of the Lititz Sewer Authority.

Information for Bidders, plans, specifications and Form of Proposal, may be examined at the Authority Office or at the office of Albright & Friel, Inc. Consulting Engineers, 121 S. Broad Street, Philadelphia 7, Pa., and copies thereof may be obtained at either office, upon a deposit of $40.00 for each set of documents. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one set will be returned to each actual bidder. Other deposits will be refunded with a deduction of $20.00 for each set returned to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of the deposit will be forfeited.

A certified check or bid bond drawn to the order of the Lititz Sewer Authority, equal to five percent (5%) of the amount of the bid must be submitted with the proposals.

Contractors may submit bids on any one or all contracts.

The proposals must be sealed and marked "SEALED PROPOSALS FOR CONSTRUCTION OF SEWAGE TREATMENT WORKS—CONTRACT NO. 5 AND/OR 6 AND/OR 7 AND/OR 8," and addressed to the Lititz Sewer Authority, No. 9 South Broad Street, Lititz, Lancaster County, Pennsylvania, c/o Mr. H. Lloyd Hess, Secretary.

The Authority reserves the right to reject any and/or all bids.

No bid may be withdrawn within thirty (30) days after actual date of opening thereof.

H. LLOYD HESS,
Secretary

Dated December 14, 1950.

Bids: January 10, 1950 (214)

Intercepter—Sec. B

STATE OF RHODE ISLAND AND
PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES
NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing TAFT ST.—PLEASANT ST. BRANCH INTERCEPTER, SEC. B, in Pawtucket, Rhode Island, will be received at office of State Purchasing Agent, State House, Providence until 10:00 a.m., Eastern Standard Time on January 10, 1951, and publicly opened and read at that time.

Project involves 615 ft. of 54-in. precast concrete pipe sewer, 4,000 ft. of 42-in. precast concrete pipe sewer including 1,300 ft. in tunnel, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, State Office Building, or Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Massachusetts, weekdays except Saturdays and holidays, 8:30 a.m. to 4:30 p.m., and may be obtained from office of State Purchasing Agent on $25 deposit.

Bid Security $25,000 certified check, bid bond, or cash, performance bond 100 percent.

Prevailing wage rates and public Work labor laws applicable.

FRANKLYN A. ADAMS
State Purchasing Agent.

(Continued on page 60)

U. S. Government

(Continued from page 59)

Department of Commerce, Bureau of Public Roads, December 8, 1950. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., JANUARY 10, 1951, for Project 1G2, Baltimore-Washington Parkway, Anne Arundel County, Maryland. Two Reinforced Concrete Structures and Approaches. Length 0.059 Mile. The approximate quantities of the more important items are as follows: 53,000 cu. yd. Excavation, 2,550 cu. yd. Cement Concrete, 270,000 lb. Reinforcing Steel, 350 cu. yd. Stone Masonry and 4,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specications and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer. (229)

OFFICIAL PROPOSALS

Bids: January 10, 1950 (234)

Furnishing Plant, Labor & Materials for Sanitary Sewers

Sealed proposals for furnishing all plant, labor and materials for the construction of approximately 79,000 lineal feet of 8", 10", 12" 15", 18", 24", 27" and 30" vitrified clay pipe sanitary sewers, manholes and miscellaneous appurtenances, together with approximately 660 lineal feet of 8", 12" and 16" cast iron pipe sewers to be constructed in the Borough of Lititz, Lancaster County, Pennsylvania, will be received by the Secretary of the Lititz Sewer Authority at the Authority Office, No. 9 South Broad Street, Lititz Pennsylvania, up to 11:00 o'clock A.M., Eastern Standard Time, at which time they will be publicly opened and read aloud on Wednesday, January 10, 1951.

The work will be divided into three contracts designated as:

CONTRACT NO. 1—Branch and intercepting sewers, consisting of approximately 22,730 lineal feet of 8", 12", 15", 18" 24", 27" and 30" vitrified clay pipe sanitary sewers and approximately 465 lineal feet of 8" and 12" cast iron pipe sewers, together with manholes and miscellaneous appurtenances.

CONTRACT NO. 2—Branch and intercepting sewers, consisting of approximately 26,770 lineal feet of 8", 10" and 12" vitrified clay pipe sanitary sewers together with manholes and miscellaneous appurtenances.

CONTRACT NO. 3—Branch and intercepting sewers, consisting of approximately 29,500 lineal feet of 8", 10", 12" and 15" vitrified clay pipe sanitary sewers and approximately 195 lineal feet of 8" and 16" cast iron pipe sewers, together with manholes and miscellaneous appurtenances.

Information for Bidders, Form of Bid, Specifications and Form of Contract may be examined at the Authority Office or at the office of Albright & Friel, Inc., Consulting Engineers, 121 S. Broad St., Phila. 7, Pa., and copies thereof may be obtained at either office, upon a deposit of $20 for each set of documents for each contract. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one set of each contract will be returned to each actual bidder and other deposits will be refunded with a deduction of $10 for each set of each contract returned to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check or bid bond drawn to the order of the Lititz Sewer Authority, equal to five (5%) of the amount of bid must be submitted with the proposals.

Contractors may submit bids on any one or all contracts.

The proposal must be sealed and marked "SEALED PROPOSALS FOR CONSTRUCTION OF SANITARY SEWERS—CONTRACT NO. 1 and/or 2 and/or 3," and addressed to the Lititz Sewer Authority, No. 9 South Broad Street, Lititz, Lancaster, Pennsylvania, c/o H. Lloyd Hess, Secretary.

The Board reserves the right to reject any and/or all bids.

No bid may be withdrawn within thirty (30) days after the actual date of the opening thereof.

H. LLOYD HESS,
Secretary

December 14, 1950.

OFFICIAL PROPOSALS

Bids: January 3, 1951 (224)

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 896-S

Furnishing and Delivering Pipe for Sewer Force Main

Sealed proposals for furnishing and delivering 8,000 feet of 36-inch and/or 42-inch pipe for a sewer force main, will be received in the office of the Purchasing Agent, Room 3 of the Washington Suburban Sanitary Commission, Hamilton Street Hayattsville, Maryland, until 2:00 P.M., Wednesday, January 3, 1951, at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission, Hyattsville, Maryland and from Whitman, Requardt and Associates, 1304 St. Paul Street, Baltimore, Maryland.

DWIGHT B. GALT
WARREN BROWNING
LELAND G. WORTHINGTON
Commissioners.

Bids: January 25, 1950 (227)

Low Lift Plant Substructure

NORTHEAST STATION FOR THE DEPARTMENT OF WATER SUPPLY
CITY OF DETROIT, MICHIGAN
CONTRACT NO. NE-1

Sealed proposals for the construction of the Northeast Station Low Lift Plant Substructure will be received by the Board of Water Commissioners of the City of Detroit, Michigan. Proposals shall be addressed to the Board of Water Commissioners, City of Detroit, Room 506 Water Board Building, 735 Randolph Street, Detroit 26, Michigan, and shall be endorsed, "Proposal for Contract No. NE-1". Proposals will be received until 10:00 A.M., Eastern Standard Time, January 25, 1951, at which time they will be opened and read aloud in the Board Room, fifth floor, Water Board Building, 735 Randolph Street, Detroit 26, Michigan.

The work consists of the construction and sinking of a reinforced concrete caisson, circular in plan, having an outside diameter of Ninety Four Feet (94') and wall thickness of Eight Feet (8'). The caisson is to be sunk from Elevation 128.00 but the top of the finished structure is to be constructed to Elevation 130.00. It is presently planned, on the basis of information obtained from sub-surface exploration at the site, to land the caisson at Elevation 17.00. However, the precise elevation at which the caisson will be landed will be determined by the Engineer and is subject to confirmation or change, higher or lower, when additional sub-surface soil information is obtained from the borings to be put down under this Contract. If it is determined from the additional information thus obtained that the caisson is to be landed above or below Elevation 17.00, the lump sum price bid will be adjusted in accordance with the provisions of the Contract.

The Contract Documents, including Notice to Bidders, Form of Proposal and Contract, Plans and Specifications, may be examined during business hours at the office of the Department of Water Supply, Room 706, Water Board Building, Detroit, Michigan. The Contract Documents may be obtained upon making a deposit of Twenty-Five Dollars ($25.00) per set, which sum will be refunded upon the return of the complete Contract Documents in good condition within thirty days after the bid date or if used in making a bonafide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than five per cent (5%) of the total lump sum price bid, drawn payable to the City of Detroit, Board of Water Commissioners, as security for the acceptance of the Contract.

No proposal may be withdrawn for at least 60 days after the scheduled closing time for receipt of bids.

The Board of Water Commissioners reserves the right to waive any informality in any bid and to accept any bid or to reject any or all bids, should it deem it to be for the best interests of the City of Detroit so to do.

CITY OF DETROIT
BOARD OF WATER COMMISSIONERS
Edward C. Roney, President
R. K. Williams, Vice President
Oscar Wagner
George A. Shaffer
L. G. Lenhardt, Superintendent,
General Manager and Chief Engineer
E. H. Bauer,
Acting Secretary

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
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POSITIONS VACANT

POSITION VACANT—Office Engineer to coordinate field and office records for force account negotiations. P-8431, Engineering News-Record.

ENGINEERS WANTED for industrial fire prevention field work by national insurance organization with offices in most major cities. These are permanent jobs with a real future, but candidates should appreciate that extensive away-from-home travel is involved. Age 26-40 preferred. P-8306, Engineering News-Record.

POSITION VACANT—Asphalt Superintendent for New Jersey Turnpike. Must be familiar with latest equipment and methods. P-8432, Engineering News-Record.

STRUCTURAL ENGINEERS with broad experience in design of bridges and other heavy structures of steel and reinforced concrete. Must be capable of assuming responsible charge of important elements of major projects, These positions offer excellent opportunities for advancement in the organization of a major Consulting Engineer located in the East. State age, education, experience, salary required and when available. P-8489, Engineering News-Record.

WANTED BY large company—technical graduate, preferably one who has had field construction experience with successful contracting organization in concrete work, pile driving, pier construction and general heavy construction. Give age, education, detailed experience record and references in first letter. This is a good opportunity for right man, and will pay salary commensurate with ability. Apply P-8511, Engineering News-Record.

REQUIRED FOR Southwest two experienced draftsmen for design and detailing wood and steel structures, foundations, reinforced concrete and other allied work. Pleasant working conditions. Pension and insurance benefits. Personal traveling expenses refunded. Apply by letter with full details, age, education, experience, etc., to American Smelting and Refining Company, 1112 Mills Building, El Paso, Texas.

WANTED—GENERAL Superintendent familiar with all phases of dam construction, consisting of concrete, excavation and water diversion for work in Middle West. P-8535, Engineering News-Record.

CONSTRUCTION SUPERINTENDENTS wanted for large general contractors, specializing in industrial construction. Our projects all over the country. Desire men qualified, through past experience, to handle industrial work. Must be engineers who have actually handled work in the above capacity. Give complete experience record in reply. P-8541, Engineering News-Record.

STRUCTURAL DESIGNER, with at least ten (10) years experience in steel and reinforced concrete. State education, extent of experience in each of the above types of work and salary expected. Frank Grad & Sons, Newark, New Jersey.

DESIGN ENGINEER—For design of sewers and sewage treatment plants. Graduate engineer with at least 5 years experience in design work required. With established engineering firm in Corvallis, Oregon. Please give summary of experience and references. Cornell, Howland, Hayes and Merryfield, 1600 Western Avenue, Corvallis, Oregon.

WANTED—CIVIL Engineering and/or Architectural Draftsmen. State experience and salary desired. Furnish sample of work. Applications will be treated confidentially. Clarke, Gardner & Associates, Consulting Engineers, 109 Calvert Street (P. O. Box 74), Salisbury, Maryland.

(Continued on opposite page)

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P-8539, Engineering News-Record
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P-8185, Engineering News-Record
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(Continued from opposite page)

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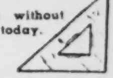

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18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
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FS 8548, Engineering News-Record
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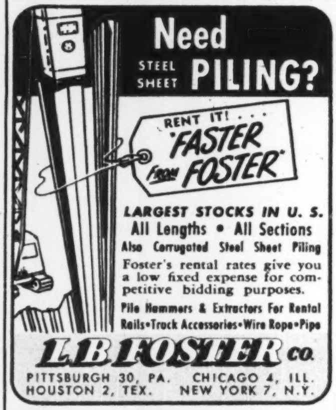

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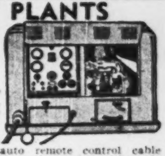

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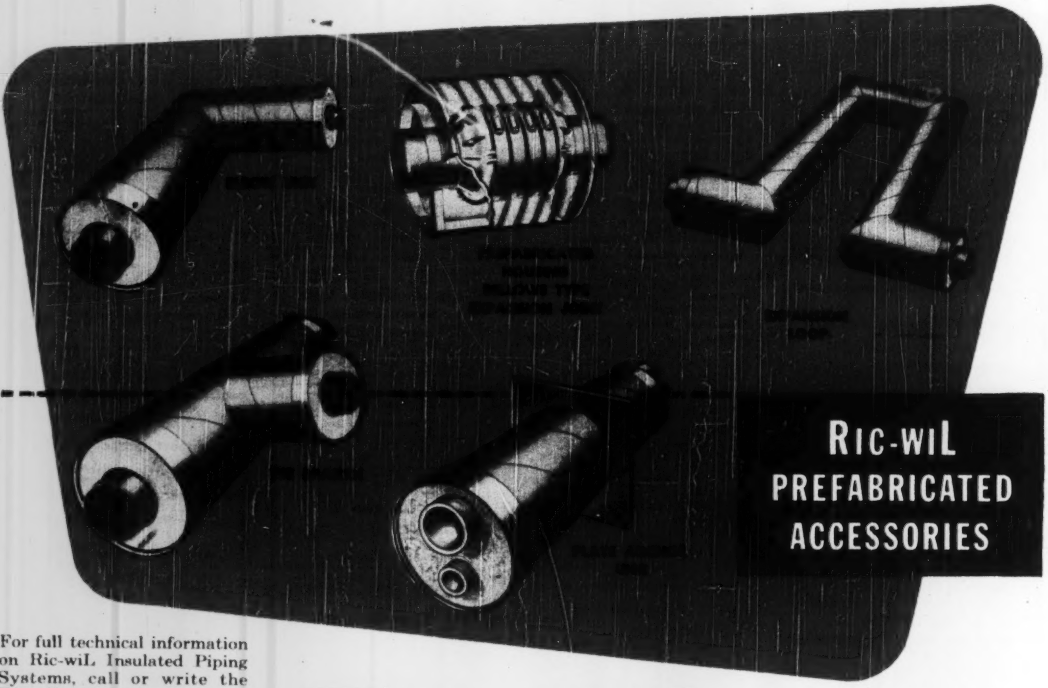

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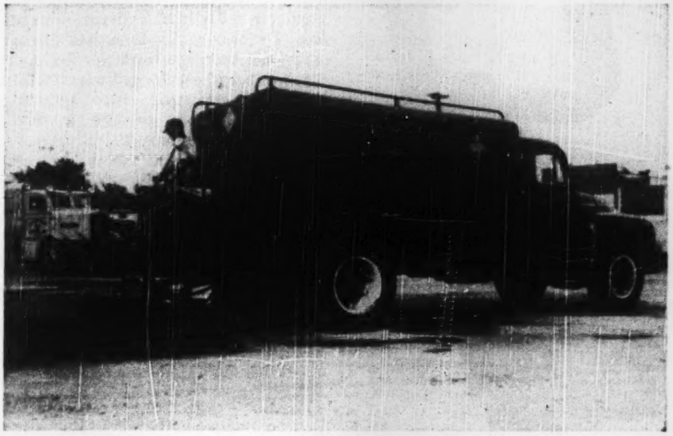

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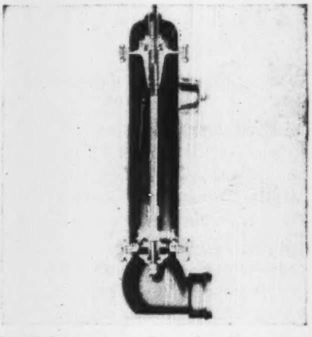
Side-dump trailer

Athey PD-20 trailer is designed as matched equipment for the recently announced Caterpillar DW20 diesel tractor. The new unit is constructed of high-strength steel with emphasis on impact resistance. It is all-welded throughout. The design is a semi-bathtub type with modified tapered sides and one low side for easier loading and dumping. The unit can be equipped to dump either to the right or left. Body is dumped by hydraulic power supplied from the tractor. Dimensions are: Over-all length of tractor and trailer, 42 ft ¾ in.; width, 12 ft 2½ in.; height, 9 ft 6 in.; wheelbase, 24 ft; and tread, 102 in. Clearance under the frame is 24⅞ in.—Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.



Ball-bearing fire hydrant

Ball-bearing operation is feature of an improved fire hydrant. Other features claimed are: Reduced pressure requirements for operation; eliminates stuffing box and packing gland; and lessens maintenance and service requirements. The B-50-B incorporates three O-rings, the lower one sealing against a bronze sleeve on the hydrant rod, and the two upper ones against

(Continued on next page)

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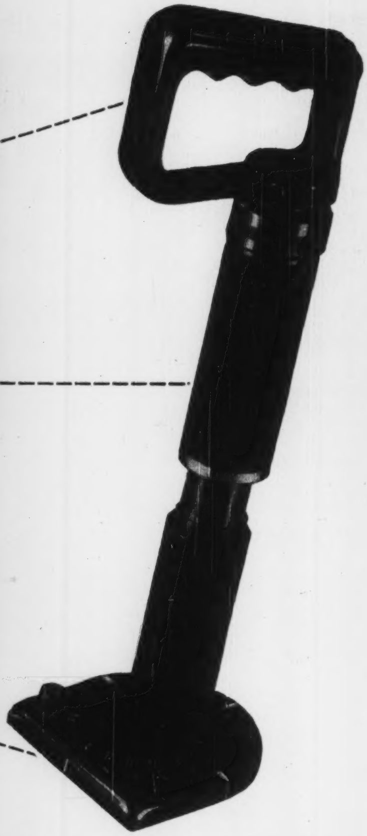

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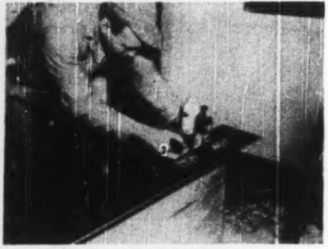
the operating nut where it passes through both the bearing cover plate and fire-hydrant bonnet. The manufacturer claims that this arrangement results in a dry head hydrant, prevents loss of lubricant distributed to threads and ball bearings through the operating nut, and precludes the possibility of water reaching the operating threads.—DARLING VALVE & MFG. CO., WILLIAMSPORT, PA.



Portable ¼-Inch Router

Quick-change chuck on the Dumore router has a ¼-in. capacity. Router bits in 1/8, 3/16, and ¼-in. sizes are available. Adjustment for depth of cut is obtained by two knurled set screws at the rear. Wide front opening gives a clear view of cut. Powered by a 1/16-hp motor, the router develops 19,000 rpm.—THE DUMORE CO., RACINE, WIS.

New Product Briefs

Light-Duty Motoroller (Gabb Mfg. Co., Windsor Locks, Conn.) can be equipped with water tank, spray bars, and cocoa mats for use when compacting bituminous concrete or other materials that require wet roller drums.

Slewing crane on fork-lift truck permits handling loads of 800 lb at 80-in. load center. It is pivoted so that it can swing laterally 20 deg to either side of center. Made by: Towmotor Corp., Cleveland, Ohio.

Circle Seal check valves are now available in a full range of sizes from ⅛ to 1-in. NPT. Two poppet-type models are available for standard and very-low-pressure systems. Maker: James-Pond-Clark, Pasadena, Calif.

Tungsten-carbide bit of the conventional flat-top type has been added to the line of crown carbide Rok-Bits. It is recommended for use where limited budgets are involved. Rok-Bits are manufactured by the Rock Bit Sales & Service Co., Philadelphia 25, Pa.

MANUFACTURERS' PUBLICATIONS

Concrete-forming system—Folder describes the Uni-Form system of concrete forming. It features a description of the principal points of this system; illustrates its use on a wide variety of jobs; and explains the use of the various ties and forms used.—UNIVERSAL FORM CLAMP CO., 1238 N. KOSTNER AVE., CHICAGO 51, ILL.

Hydraulic trencher – Ware Hydro-Trencher for Oliver Model 77 and 88 tractors is described in detail in this 4-p folder. The folder lists ten features claimed for the Ware unit, and shows illustrations of it in use. A complete list of specifications and dimensions is included.—WARE MACHINE WORKS, INC., WARE, MASS.

Snow-plow wax—Catalog sheet describes Snow-Rem, a snow-plow wax containing silicone. Bulletin describes the features of the wax, illustrates its method of application, and contains data on prices and shipping weight.—SPECO, INC., 7308 ASSOCIATE AVE., CLEVELAND 9, OHIO.

Core drill—Bulletin D-28 describes in detail the Joy 22-HD heavy-duty diamond core drill. The bulletin contains information and complete specifications on the 22-D—described as a 2,000-ft-capacity drill that can be driven by gasoline, electricity, or compressed air. The bulletin illustrates various mountings including truck, steel skids, and underground column. —JOY MFG. CO., 900 WOODLAND AVE., MICHIGAN CITY, IND.

Lubrication practices–Folder describes a full line of Lubriko greases for anti-friction bearings. The folder gives use and application data for 25 different Lubriko densities ranging from liquid greases to heavy cup lubricants. Also given are facts on lubrication maintenance and the selection of a lubricant. —MASTER LUBRICANTS CO., MEADOW & JACKSON STS., PHILADELPHIA, PA.

Swivel-pilers – Conveyor or wheel-mounted swivel-pilers are described in new catalogs. The conveyor-mounted unit is designed to extend the storage range of fixed or portable conveyors; the wheel mounted, for storing, turning, or aerating granular or small-lump materials. The catalogs describe method of operation of the swivel-pilers, and describe their features of construction. Complete specifications and dimensions for each model are listed. — STEPHENS-ADAMSON MFG. CO., AURORA, ILL.

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Labor looks for more than raises

With the shadow of a war emergency held determinedly in the background by both sides, the pattern of construction labor-employer negotiation is holding to the line of greater worker benefits, along with upward wage adjustments.

Of course as the emergency takes on substance a lot of bets may be off. But the possibility of a wage freeze, for example, is a strong driving force behind the quest for benefits other than raises.

Welfare agreements in negotiation or approved in Chicago, New York, and on the Pacific Coast, as well as in other large construction centers, are the keys to the trend.

• **Secondary effect**—Such agreements, incidentally, may have secondary results of equal importance: They may for the first time provide some statistical background for a lot of generalizations concerning construction labor.

Such questions as average age of workers in any category; how long such men keep working; their normal working hours; keeping track of the men as they shift employers in a fast-moving industry, have long been barriers to any sense-making statistics on the industry and its employees. Experience with the welfare programs may provide some answers.

• **To be specific**—For exactly the reasons cited above, working out the mechanics of welfare programs hasn't been easy. Many are still being investigated, some have started—insofar as contributions to funds for them are concerned. Financial arrangements, such as investments of the funds, methods of payment and the like are stoppers.

In Chicago, for instance, the Health and Welfare Department of the Construction and General Laborers' District Council of Chicago and Vicinity (a mouthful of a title for a big operation) was created May 25 of this year. Employers started June 1 making payments of 5 cents for each hour worked by laborers on their payrolls. The program, to cover about 10,000 workers (it would drop to about 8,000 if city and other governmental employees are excluded) is expected to include death benefits, weekly compensation in case of accidents or sickness, and hospital care.

This program has progressed so far as the choice of an impartial trustee (John E. Shanahan, retired controller of International Harvester) and a 12-man board of trustees representing labor and employers; and the establishment of a checking system whereby employers make monthly reports from their payrolls, and workers also report on the hours worked by them.

But it has snagged on the question of financing. Trustees are still carrying on discussions with insurance companies and financial advisers on the various investment and payment programs that might be established.

• **N. Y. leads**—In the recent master agreements signed between members of the New York Building Trades Employers' Association and the seven major construction trades, welfare programs, pension plans or paid holidays (at least two of these benefits) appeared in every single agreement. When the pacts were being discussed, Labor was given a choice of two of the three benefits.

In effect, these agreements mean that 72 welfare plans alone are in operation for the major trades and their subdivisions.

As in Chicago, however, the matter of financing many of the programs remains in the discussion stage, pending actuarial decisions, and working out of administrative details.

• **Other evidence**—Further evidence is contained in a recent summary by the government's Bureau of Labor Statistics, which listed three prevalent types of "escalation" agreements in recent labor contracts.

In New York, the BTEA's three-year contract with its workers provides for only one wage adjustment —Jan. 1, 1952—based on any changes in the consumer price index for New York City between June, 1950 and October, 1951. Under these contracts, if the index changes less than 10 percent, there will be no adjustment (ENR July 6, p. 28). If the index changes more than 10 percent, the wages will be adjusted by the percentage over 10 percent, corrected to the nearest nickel.

In Arizona, a contract signed between the Arizona Chapter, Associated General Contractors, the Arizona Building Contractors and the AFL building trades, is based on the national cost-of-living index. During the five-year life of the contract, the wage rates will be adjusted each year on Nov. 15 or May 15, if the index changes at least five points—a one-cent adjustment for each full point change in the index.

And the Building Contractors Assn. of Indianapolis and the AFL Operating Engineers agreed to an annual wage adjustment for three years, based on the Indianapolis cost of living index. The men will get a five-cent adjustment for every approximate 3.5-point change in the index, with a maximum of 15 cents an hour.

All these agreements, incidentally, provide that wages shall not drop below set levels.

At the same time as these adjustments were being written into contracts, it should also be noted that the BLS annual survey of construction workers noted a general rise in union wage scales of journeymen (10 cents) and helpers and laborers (9 cents).

• **San Diego case**—The recent contractor-labor trouble in the San Diego area (ENR Dec. 14, p. 26) which headed into court action but then was settled by negotiation, however, didn't have its roots primarily in Labor's drive for other benefits.

The master contract itself dates back to 1941, when 2,350 contractors—through the AGC and the Building Contractors Association—got together with Labor representatives in a pact that was to stabilize the construction industry for years.

Year by year, amicable agreements had included keying wages to the national cost-of-living, to the scales of national unions.

But at the end of 1949, when new contracts were being negotiated, the carpenters balked. They balked because they were already getting 13-cents-an-hour from a group of building-site developers, who were outside the main agreement, but who had acquiesced to a short form of it.

This was no question of a walkout for higher wages (the carpenters struck in mid-July of 1950, despite denunciation by other unions and by employers), but—in the eyes of others—a deliberate breach of contract. The carpenters had simply reached for greener fields. Drastic reduction of homebuilding through government restrictions quickly browned those greener fields, and in any case the carpenters came back into the fold, signed the new agreement, and the suit was dropped.

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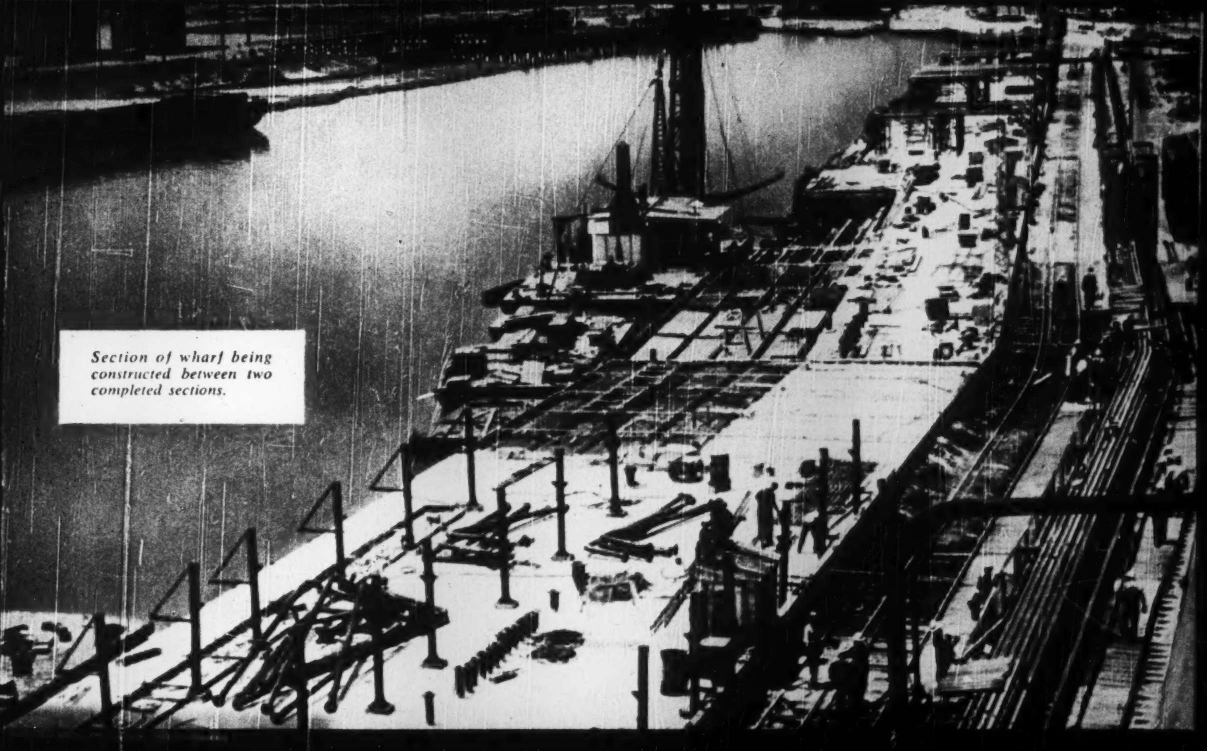

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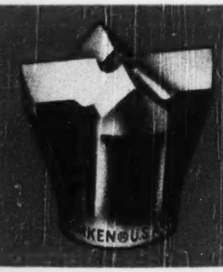

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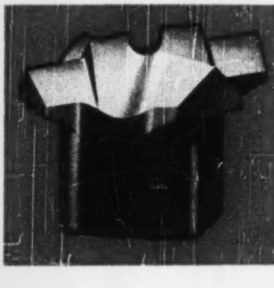

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